

# FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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## Flight.

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### TO OUR READERS.

The Supply of "FLIGHT." Important Notice.

Order "FLIGHT" to be either delivered or reserved for you regularly.

As the demand for "FLIGHT" is so great each week, it is of the utmost importance that readers should place their orders *firmly* for copies of "FLIGHT" at the bookstalls, their newsagents, or direct from the publishers, at 44, St. Martin's Lane, W.C., if they wish to secure a copy every week and avoid disappointment. The stringent Government restrictions in regard to the supply of printing paper necessitates this precaution in order that only actual numbers required are printed, and all wastage by unsold copies may thereby be reduced to a minimum, if not eliminated.

THE PUBLISHERS.

### EDITORIAL COMMENT.



WHEN a conscientious body of men have been working enthusiastically and unwearingly over a number of years for the sake of a cause dear to their hearts, probably no payment computed in mere £ s. d. could possibly repay them for all their disinterested thought and foresight in the same degree as a mark of high appreciation from those on whose behalf the consistent labours have largely been devoted. That this endorsement of their efforts on behalf of the Club directly and of the air conquest

### The Royal Aero Club.

movement generally was so wholeheartedly forthcoming at the recent special general meeting of the Royal Aero Club, when it was decided to increase the subscription, with the object of extending the Club's usefulness, must have been a source of the greatest gratification to the Committee of the Club. This up-to-date policy of the Committee is, without doubt, the right note to strike at such an all-important period as the present in the development of the realm of the air, as the enormous influx into the ranks of practical aviation at the present time calls for the establishment of a meeting ground for those whose lives have been committed to whatever the future of Aviation may evolve for them collectively and each individually. Probably no other art, science, sport, occupation, or by whatever other name one designates the problem of aerial navigation, calls more for a common platform upon which can be presented, for mutual criticism and discussion, the thousand-and-one interesting and novel points which are arising from day to day, as the mysteries leading to the Dominion of the Air. For a long time there has been a growing and strongly expressed desire amongst all sections of those associated with Airism that such an aerial "Mecca" should be brought into being. This fact has, of course, been fully realised by those in control at the Royal Aero Club, but they have naturally had to consider ways and means, and carefully wait until the time was really ripe for "jumping off" on what might easily, in such times as the present, result in disaster. By waiting thus long as the Committee have done, they have exercised the wisest possible judgment, and they have every prospect now of reaping the rich harvest of success, on behalf of the Club as a body, which their judicious and unimpeachable methods in

the past have earned for them. In the earlier days of the war we ventured to enter the ranks of the prophets by foretelling this very period of increased activity and scope for expansion, as to us it was manifestly evident that the rapidly extending list of Service pilots must sooner or later bring into being a club, in every sense of the word, where they could be sure of finding congenial company, to whom the mysterious jargon of the craft and the exchange of thought were as the breath of life. No longer need there be any worry upon this point, as by the resolution at the general meeting of the members of the Royal Aero Club the breach has been filled, and probably by the end of the year, if not before—it may be by October next—the Club will be installed in a roomy and convenient House, where members will have at their disposal all the more substantial benefits of a social club, whilst having the much-honoured privilege of belonging to a body which has a history behind it as an epoch-making Society of Encouragement, and which is, moreover, in possession of the guiding and controlling reins of the official side of the art and sport.

The result of the meeting was a foregone conclusion, as it will be remembered that when, some time back, the Committee issued a form of inquiry for ascertaining the views of the individual members, a very large majority resulted in favour of extending the operations of the Club by acquiring suitable House premises, more in keeping with the important position which the Club holds in the country. Since then the Club has steadily waxed stronger, until it has greatly outgrown its present habitation. That there should be no iota of a mistake, the Committee, in calling the formal meeting to decide the question, again sent out to every member a fresh form of inquiry, so that recently-elected members might have a voice in the matter, and in which special attention was drawn to the opportunity for re-expressing their views, in the case of older members in the event of their having modified their opinion in the interim. The response—or rather comparative absence of response—to this opportunity was about the greatest compliment to their proposals the Committee could have had. The result, expressed in figures in last week's issue of "FLIGHT" under the Club's official notices, speaks for itself. So few proportionally were the objectors that the voting by the means of these forms may be

regarded as unanimous, especially as most of the very, very few who were at variance with the wishes of the majority, were only so at variance upon some minor point, and qualified even at that. The position, therefore, now stands that as from January, 1917, members will be called upon to pay the moderate subscription of £5 5s. per annum, and will receive in exchange all the benefits which a well-appointed social club can provide, as the Committee have already well in hand the negotiations for suitable premises, which, by the time these lines are in print, may even have been concluded.

For a long time past members of both Services have been conspicuous in their numbers in joining up with the Club, and now that the important decision has been taken to go forward with the enlarged scheme, we can see the prospect of a greatly increased membership eventuating between now and the end of the present year. It would be as well for prospective members to have it well in mind to put their names down on the list, as, should the applications accrue in anything like the ratio that we anticipate, there will be the prospect of late-comers having to face an increased entrance fee somewhat more onerous than the modest two guineas which, for the present, still holds good.

We offer our sincere congratulations to the Club Committee upon the success of their administration of the Club's affairs, and the highly promising prospects of the Club in the future give every sign of adding still more to the monument of progress which the Club's past work has set up. It is a work which those who had a part in its building must regard with considerable pride, and in this connection we cannot close without a reference to the untiring and enthusiastic work which in the history of the Club will ever be associated with the name of its Secretary, Lieut.-Commander Harold G. Perrin, R.N.A.S., who from soon after the outbreak of hostilities has been also, with indefatigable ability, serving his King in another direction. To Mr. B. Stevenson, the Assistant Secretary, who in Lieut.-Commander Perrin's temporary absence has been entrusted with the main working of the Club, ably seconded by the Staff, is also due a large measure of thanks for the tactful handling of the Club's affairs during the very trying period of war through which the Committee have had to steer the Club's responsibilities placed in their care.

## Another V.C. for the R.F.C.

IN a special supplement to the *London Gazette* issued on Saturday it was announced that His Majesty the King had been graciously pleased to award the Victoria Cross to the undermentioned officer for most conspicuous bravery and devotion to duty :—

Captain (temporary Major) LIONEL WILMOT BRABAZON REES, R.A. and R.F.C.

For conspicuous gallantry and devotion to duty. Whilst on flying duties Major Rees sighted what he thought to be a bombing party of our own machines returning home. He went up to escort them, but on getting nearer discovered they were a party of enemy machines, about ten in all. Major Rees was immediately attacked by one of the machines, and after a short encounter it disappeared behind the enemy lines, damaged. Five others then attacked him at long range, but these he dispersed on coming to close quarters, after seriously damaging two of the machines. Seeing two others

going westwards, he gave chase to them, but on coming nearer he was wounded in the thigh, causing him to lose temporary control of his machine. He soon righted it, and immediately closed with the enemy, firing at a close-contact range of only a few yards, until all his ammunition was used up. He then returned home, landing his machine safely in our lines.

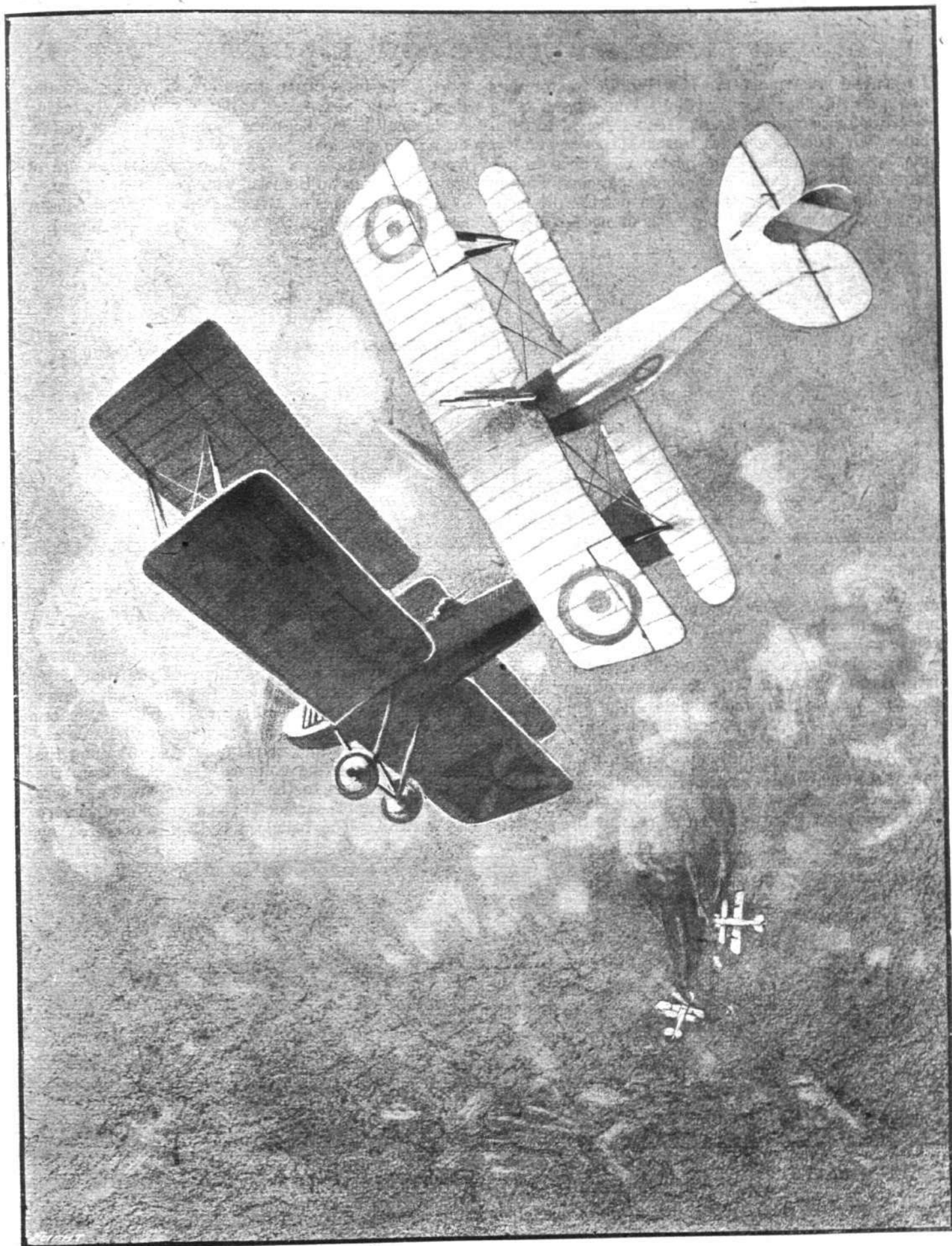
## British Raid on Aerodrome near Ghent.

THE Secretary of the Admiralty made the following announcement on the evening of August 4th :—

"On August 2nd successful attacks by a naval aeroplane squadron of bombing and fighting machines were carried out on the enemy's aerodrome at St. Dennis Westrem and on his ammunition sheds at Mierelbeke.

"About 2 tons of bombs were dropped on the objectives and considerable damage was done.

"One of our fighter machines (Flight Lieut. Baudry, R.N.) is missing, and is believed to have been shot down. The remainder returned undamaged."



"Flight" Copyright

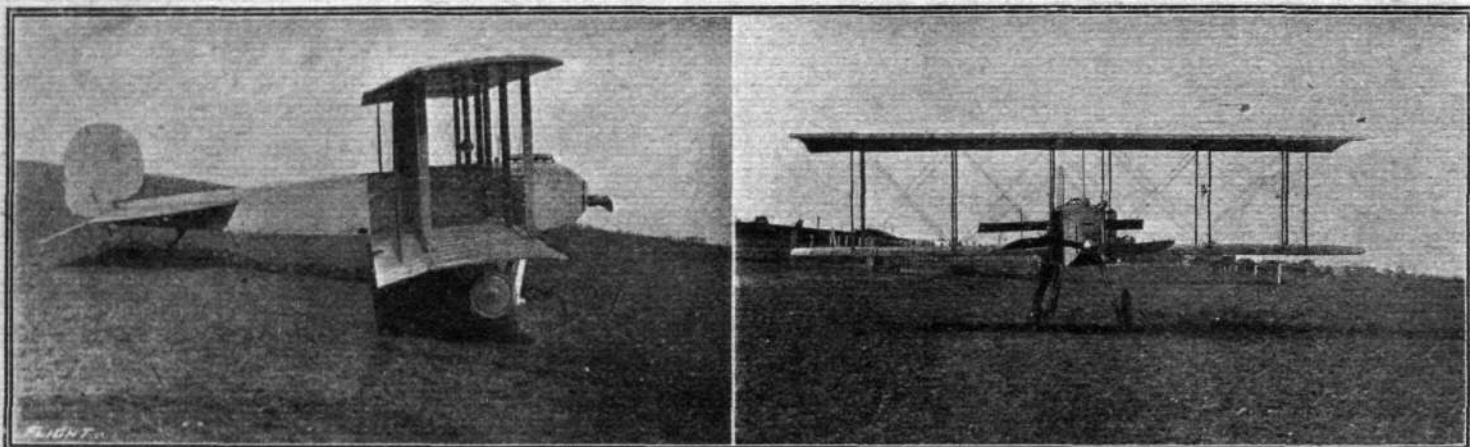
**QR.-MASTER TERLINE'S HEROIC SACRIFICE.**—The incident in which this French air pilot, in a heroic air fight (accepting the version of those who vouch for the incident, in conjunction with the expressed resolve of Qr.-Master Terline, to, if necessary, ram the enemy in mid-air), deliberately rammed the German aeroplane, although realising the action meant certain death to himself. A tribute paid to this hero of the air by one of his brother pilots who was engaged in the same air fight, and which we reproduce on page 684, from the *Daily Telegraph's* Paris correspondent, records one of the most remarkable deeds of the war.

## THE NEW WRIGHT TRACTOR BIPLANE—TYPE L.

In general appearance the new Wright tractor does not present anything startling, but follows fairly closely along standard lines. It is designed to combine a fair speed range with reasonable power and low purchase price and cost of upkeep. Its lines do not impress one as being particularly pleasing, and it would appear to have been quite possible to have improved these considerably without necessarily in-

port. The inter-plane struts are of spruce, streamlined, and fit into sockets with their ends. By taking out a small bolt which runs through the strut and its fitting the struts are slipped out, releasing the wires from the hook-plates. The main wing spars are of spruce, as are also the ribs, which are of I section.

The tail consists of a semi-circular fixed stabiliser, non-lifting, to which the elevator flaps are hinged.

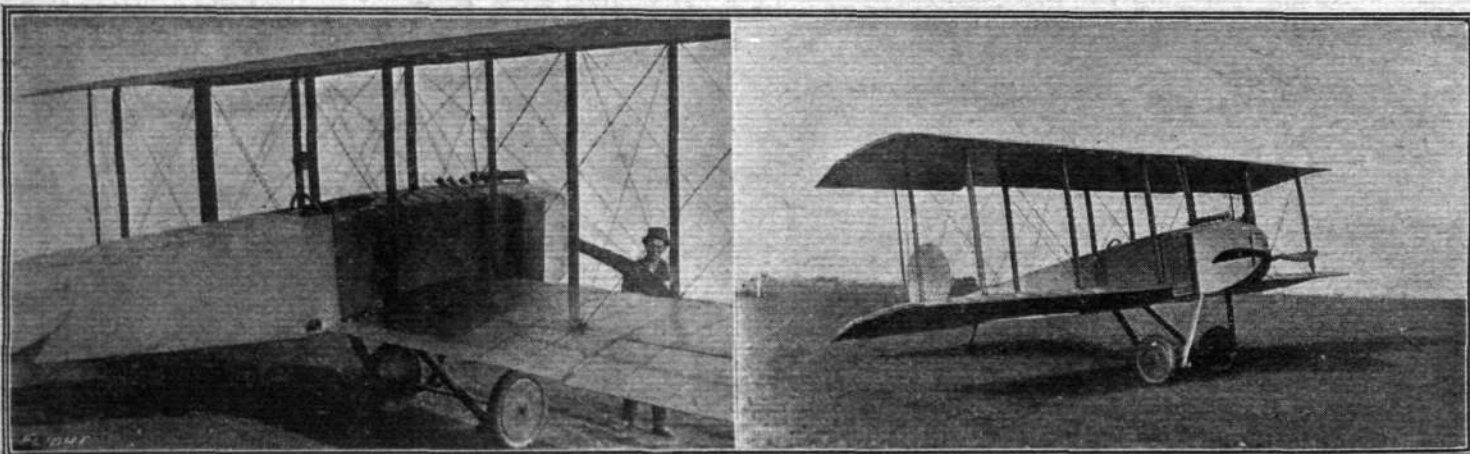


THE LATEST WRIGHT MILITARY SCOUT.—Views from the side and in front.

creasing the cost. However, according to reports the machine flies very well, and after all that is the main consideration.

The main planes are of a totally different section from that of the older Wrights, but no dimensions of the new wing section are available. The top wing is built up in three sections, and the lower in two, the end sections being interchangeable. Bracing is effected by solid wires, all the lift wires being in duplicate. No turnbuckles are employed, the ends of the wires being formed with eyes, securely soldered, which loop over hook plates under the ends of the struts.

Lateral equilibrium is maintained by double-acting ailerons cut out of both upper and lower planes, hinged to the rear spars. These have a slight curve, and normally are actual portions of the wings. A spruce spacer strut connects the upper and lower ailerons. The control cables run from the spacer strut-ends over pulleys at the upper and lower extremities of the adjacent plane struts and along the wings to the steering column. The cable from the lower aileron runs to the top of the strut and *vice versa*. The ample surface of the ailerons insures very easy control. The balanced rudder is operated by

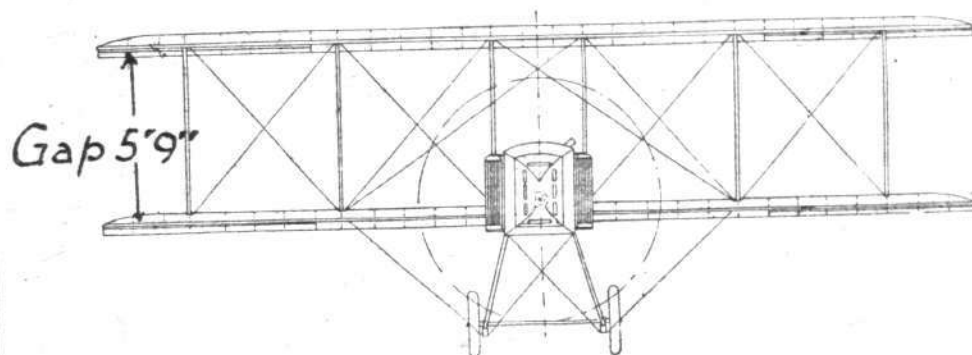
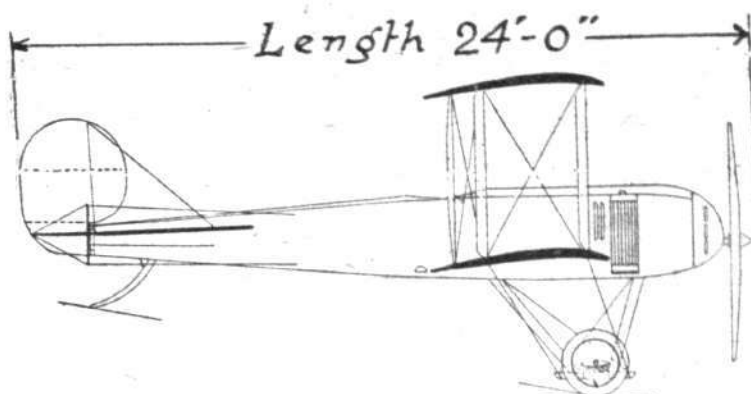


THE LATEST WRIGHT MILITARY SCOUT.—Three-quarter rear and front views respectively.

Instead of having the body struts run to the top rails of the body, as is standard practice on this side, they are connected at the top to a centre section, and at the bottom to a short length of wing secured to the sides of the body. In this way the outer sections of the wings are easily detachable for purposes of trans-

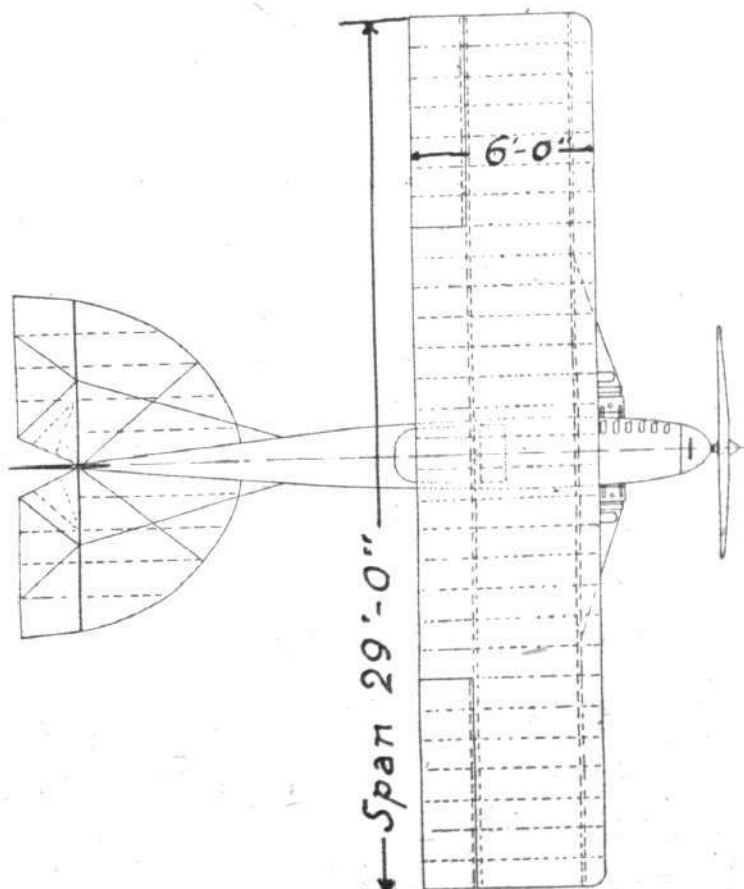
cables running into and through the fuselage to the "grip" or lever on the steering wheel. The elevator flaps are operated by cables from the masts through the fuselage to the wheel.

The steering set used is the standard Wright system, in which, it will be remembered, that turning



Area of  
Main planes  
334 sq. ft.

WRIGHT  
"L" Scout Biplane  
70 HP. 6 cyl. Wright



0 2 4 6 8 10  
Scale of feet

THE WRIGHT MILITARY SCOUT.—Plan, side and front elevations to scale.

the wheel right or left operates the ailerons; rocking the wheel and its supporting column fore and aft operates the elevators. An aluminium hand lever turns the rudder with very little pressure. Gripping the wheel and the lever at the same time in one hand causes the rudder to turn simultaneously with the operation of the ailerons, otherwise the ailerons may be operated entirely independently. The aileron and rudder cables end in short chains which run over sprockets on the steering column. The aileron sprocket is rigidly attached to the axis of the steering wheel. The rudder sprocket is free on the same shaft. Gripping the rudder lever with the wheel in one hand obviously rotates the two sprockets simultaneously.

The fuselage is of usual box girder construction, strongly braced. The nose is covered with aluminium, with very large doors to give access to the motor. The remainder is covered with linen, doped, painted grey and varnished. The deck is of veneer, linen covered. The body tapers to a vertical knife edge at the rear. The rudder is hinged to the rear-most strut of the fuselage. Where control cables pass into the fuselage brass eyelets are used. In the fuselage no bolts pass through the rails, a special fitting obviating this practice. The longitudinal rails are ash, and the struts are spruce. The pilot sits in a comfortable seat under the trailing edge of the upper wing.

In front of him is a dash with petrol gauge, clock, aneroid, pressure gauge and speed indicator mounted thereon. Pressure in the tank is maintained by hand pump. The engine may be primed from the seat. The right foot operates the throttle pedal, and the left pedal takes care of the magneto advance. Between the two is a magneto cut-out button.

On a strut is fastened the Wright Incidence Indicator which gives at all times the angle of the chord of the planes with respect to the air currents through which the machine is flying, and is entirely independent of gravity.

The motor is the latest Wright, six cylinders, 4½ ins. by 4½ ins. bore and stroke, rated at 70 h.p. The tractor screw, of high pitch, is mounted on a short shaft, which forms part of the Wright flexible drive. The engine shaft has a light flywheel keyed to it. Concentric with this is a steel disc, to which the propeller shaft is keyed. Eight stud bolts project from the disc and the flywheel respectively, and over each pair of studs is a short but very heavy endless rubber band. These bands transmit the full power of the motor to the propeller, and absorb vibration and sudden strains on propeller or engine shaft. The petrol tank is to the rear of the motor, enclosed in the fuselage. The entire engine is covered in by the fuselage, the exhaust pipes sticking through holes in the deck. A flat tube radiator is on either side of the nose of the fuselage, and these are quickly demountable by unfastening retaining straps which hold them to plates attached to the framing. The hose connections can be quickly taken off.

The chassis is very simple. The axle is a steel tube, and the weight of the machine is taken by rubber band shock absorbers. The wire wheels are fitted with aluminium discs; the chassis struts are of ash.

Span is 29 ft.; gap, 5 ft. 9 ins.; chord, 6 ft.; area main planes, 334 sq. ft.; length over all, 24 ft.; weight empty, 850 lbs. A useful load of 650 lbs. may be carried, including 12 gallons of fuel for 2 hours' flying, water, oil, pilot, &c. The gross weight per square foot, including ailerons, is 4.5 lbs.

## The Roll of Honour.

THE Secretary of the Admiralty announces the following casualties:—

### Missing (AUGUST 2ND).

Flight-Lieut. R. G. A. Baudry, R.N.

### Accidentally Injured (AUGUST 4TH).

Flight-Lieut. C. R. Blagrove, R.N.

### Slightly Wounded.

Flight-Lieut. J. E. B. MacLean, R.N.

### Seriously Injured (JULY 29TH).

Flight-Sub-Lieut. H. G. Ford, R.N.

### Slightly Injured (JULY 30TH).

Flight-Sub-Lieut. A. V. Bowater, R.N.

### Previously reported Missing, on January 6th, 1916, now presumed Killed.

Flight-Commander H. A. Busk, R.N.

The following casualties have been officially announced by the War Office:—

### Killed.

Second Lieut. G. V. Randall, E. Lancs. R. and R.F.C.

Lieut. D. B. Richardson, R.F. and R.F.C.

Lieut. D. Wilson, Royal Flying Corps.

### Died of Wounds.

Second Lieut. J. L. Reid, Northumberland F., attd. R.F.C.

### Accidentally Killed.

9468 1st Class Air-Mechanic D. Carey, R.F.C.

### Wounded.

Second Lieut. G. M. Angier, R. Sussex R., attd. R.F.C.

Second Lieut. R. J. Bennett, Royal Flying Corps.

Second Lieut. W. E. G. Bryant, R. Fus., attd. R.F.C.

Capt. J. Callaghan, Royal Flying Corps.

Second Lieut. H. J. W. Collins, Gloucester R. and R.F.C.

Lieut. L. T. N. Gould, R.G.A., attd. R.F.C.

Second Lieut. A. Hughes, Royal Flying Corps.

Lieut. H. H. James, Manchester R., attd. R.F.C.

Second Lieut. J. W. Jardine, Royal Flying Corps.

Lieut. G. K. C. Kerr, Shropshire L.I., attd. R.F.C.

Second Lieut. E. L. Lewis, Essex R., attd. R.F.C.

Second Lieut. J. F. Morris, Royal Flying Corps.

Second Lieut. G. S. D. M. Pape, Royal Flying Corps.

Lieut. R. H. C. Usher, Wilts R., attd. R.F.C.

Lieut. H. H. Watkins, R.F.A., attd. R.F.C.

Second Lieut. T. J. West, E. Yorks. R. and R.F.C.

Lieut. L. E. Whitehead, Royal Flying Corps.

Second Lieut. R. P. Willcock, Oxford and Bucks L.I. and R.F.C.

7258 1st Class Air-Mechanic H. Brown, R.F.C.

### Missing.

Second Lieut. F. Bowyer, Royal Flying Corps.

Second Lieut. J. A. Brown, Royal Flying Corps.

Capt. L. S. Charles, Worcester R., attd. R.F.C.

Lieut. E. R. Farmer, Yeomanry, attd. R.F.C.

Second Lieut. L. N. Graham, W. Yorks. R., attd. R.F.C.

Second Lieut. J. G. Robertson, Royal Flying Corps.

Second Lieut. E. D. Steytler, S. Lancs. R. and R.F.C.

Lieut. C. Williams, Highland L.I., attd. R.F.C.

### Previously reported Missing, now reported Prisoner of War.

Lieut. W. B. Ellis, A.S.C., attd. R.F.C.

### Previously officially reported Missing, now unofficially reported Prisoner of War.

Second Lieut. C. Kerr, Royal Flying Corps.

### Corrections:

### Missing.

Capt. W. D. S. Sunday, R.F.C., should read:

### Wounded.

Capt. W. D. S. Sanday, Royal Flying Corps.

# The British Air Services

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

## Royal Naval Air Service.

The following appeared among the Admiralty announcements of August 5th:—

Flight Commander T. K. Elmsley promoted to the rank of Squadron Commander, with seniority June 30th.

Temporary Sub-Lieutenant, R.N.V.R., E. F. Turner promoted to Temporary Lieutenant, R.N.V.R., with seniority August 2nd.

The following appeared among the Admiralty announcements of August 7th:—

The undermentioned have been entered as Probationary Flight Sub-Lieutenants, with seniority as stated: F. E. Banbury, June 28th; H. E. Gonyon, June 30th; E. D. Roach, July 5th; A. W. Farquhar, July 7th; B. Devlin, July 8th; G. R. D. Wooler, August 5th.

Probationary Flight Sub-Lieut. A. E. E. Blackburn and Sapper R. St. H. Clarke granted temporary commissions as Sub-Lieutenants, R.N.V.R., both with seniority August 5th.

## Royal Flying Corps (M.W.)

THE following appeared in the *London Gazette* of August 1st:—

**Memorandum.**—Temporary Second Lieutenants: Sergt. C. C. Marsden, from St. Paul's School, O.T.C., for duty with the Royal Flying Corps; July 29th, 1916.

The following appeared in a supplement to the *London Gazette* issued on August 2nd:—

**Park-Commander.**—Or-Mr. and Hon. Lieut. (Temporary Capt.) J. Mead, R.F.C., from an Equipment Officer, and to be Temporary Major whilst so employed; July 19th, 1916.

**Flight-Commanders.**—From Flying Officers, and to be Temporary Captains whilst so employed: Second Lieut. V. D. Bell, Special Reserve; July 14th, 1916. Temporary Lieut. E. D. Johnson, General List; July 15th, 1916. July 16th, 1916: Temporary Lieut. G. N. Teale, General List (since killed in action); Temporary Lieut. C. F. Portal, R.E., Special Reserve. Lieut. A. R. S. Clarke, Dorset R.; July 18th, 1916. Lieut. J. S. Scott, Canadian Local Forces; July 20th, 1916. Temporary Lieut. E. L. Foot, General List; July 23rd, 1916.

**Memoranda.**—Temporary Lieut. Franks L. Robinson, from R. Mar. A., to be Temporary Lieut. on the General List for duty with the Royal Flying Corps; June 8th, 1916. Lieut. R. D. Bradshaw, 3rd Canadian Dns., to be Temporary Second Lieutenant for duty with Royal Flying Corps; June 5th, 1916.

The under-mentioned, from R.F.C., to be Temporary Second Lieutenants, for duty with the Military Wing of that Corps: Sergt. George E. Phillips; July 5th, 1916. Flight-Sergt. W. S. Hammond; July 6th, 1916. Corpl. F. W. Ham; July 15th, 1916.

Pte. H. A. B. Norris, from Lond. R. (T.F.), to be Temporary Second Lieutenant for duty with R.F.C.; July 22nd, 1916.

**Supplementary to Regular Corps.**—Second Lieutenants (on probation) confirmed in their rank: S. Dendrino, J. Bell, R. F. Talbot, J. N. Holtom, C. W. Carleton, K. W. P. Hindley.

To be Second Lieutenants (on probation): F. C. Mears; July 10th, 1916. A. J. L. Chrystall; July 14th, 1916. July 25th, 1916: F. H. Holdsworth, B. Gaskin, P. S. Whitmore, J. A. Myburgh, C. E. de Berigny.

The following appeared in a supplement to the *London Gazette* issued on August 3rd:—

**Flying Officers.**—Second Lieut. F. J. Morse, K. R. Rif. C., Special Reserve, and to be seconded; June 22nd, 1916. Temporary Second Lieut. L. E. Owen, General List; July 3rd, 1916. Second Lieut. S. Dendrino, Special Reserve; July 5th, 1916. July 7th, 1916: Second Lieut. E. L. Benbow, R.A., from a Flying Officer (Observer). Temporary Second Lieut. H. J. W. Collins, Glouc. R., and to be transferred to the General List. Second Lieut. J. N. Holton, Special Reserve. July 13th, 1916: Temporary Second Lieut. F. McIntosh, K. R. Rif. C., and to be transferred to the General List. Second Lieut. J. D. Canning, N. Staff. R., Special Reserve,

and to be seconded. Second Lieut. H. Jameson, Special Reserve, from an Assistant Equipment Officer. Second Lieut. F. S. Schell, Special Reserve. Second Lieut. J. Bell, Special Reserve. July 14th, 1916: Second Lieut. J. K. Stead, York R. (T.F.). Temporary Second Lieut. F. L. Barnard, R. Berks R., and to be transferred to the General List. Second Lieut. A. O. K. Wright, Special Reserve. July 15th, 1916: Temporary Capt. R. K. Thomson, A.S.C., and to be transferred to the General List. Temporary Lieut. A. T. Easom, Notts and Derby R., and to be transferred to the General List. Temporary Lieut. W. G. S. Curphey, R. Berks. R., and to be transferred to the General List. Temporary Second Lieut. M. V. McKeon, R.A., and to be transferred to the General List. Lieut. S. C. H. Begbie, E. Surr. R., Special Reserve, and to be seconded. Second Lieut. (on probation) W. H. A. Heald, R. Fus., Special Reserve, and to be seconded. Second Lieut. R. FitzR. Talbot, Special Reserve; July 16th, 1916.

**Memoranda.**—Siddhartha J. Oliver, from University of London O.T.C., to be Temporary Second Lieutenant for duty with R.F.C.; July 21st, 1916.

N.C.Os. and men to be Temporary Second Lieutenants (on probation) for duty with R.F.C. (Substituted for the notification in the *Gazette* of July 3rd, 1916): Pte. J. Clinkskill, from A.S.C.; May 28th, 1916. May 29th, 1916: L.-Corpl. E. J. Phelps, from R. War. R., Pte. F. J. W. Humphreys, from Sea. Highrs., (T.F.), Corpl. G. C. Twining, from A.S.C.; May 30th, 1916. Pte. J. S. Williams, from Canadian A.S.C.; May 31st, 1916. Sergt. J. M. R. Langley, from 19th Alberta Dns.; June 2nd, 1916. Sergt. Lewis C. Chapman, from R.E. (T.F.); June 3rd, 1916. Sergt. H. V. Jerrard, from R.F.C.; June 4th, 1916. Pte. Francis E. Glass, from A.S.C.; June 11th, 1916. June 12th, 1916: Flight-Sergt. W. B. Everton, from R.F.C.; Flight-Sergt. A. S. Morris, from R.F.C.; 2nd Class Air-Mechanic C. J. Sandys-Thomas, from R.F.C.; 1st Class Air-Mechanic H. E. Hervey, from R.F.C.; June 14th, 1916.

**Supplementary to Regular Corps.**—Second Lieut. A. Lang relinquishes his commission; May 30th, 1916.

Second Lieutenants (on probation) confirmed in their rank: C. Holland, H. Hulbert, F. E. Sargood, C. E. Finlay, R. P. Atwood, J. T. Hanning, N. Comper, W. F. Williamson, P. Thompson, M. V. Barton to be Second Lieutenant; July 7th, 1916. To be Second Lieutenants (on probation): G. P. L. Jacques; July 3rd, 1916. A. L. Cockburn; July 7th, 1916. July 10th, 1916: H. R. Gillespie, N. L. Godber, P. Maggs, C. Woodall, R. H. Tweedy, F. I. Fleming, R. N. Corah, G. L. Bennet, P. M. E. Impey, G. E. Upton, R. J. Copley, E. A. Mayner; July 17th, 1916. C. R. Sloan July 22nd, 1916. C. D. Allan; July 29th, 1916.

The following appeared in the *London Gazette* of August 5th:—

**Equipment Officer.**—Lieut. C. Barber, Special Reserve, from an Assistant Equipment Officer, and to be Temporary Captain whilst so employed; July 17th, 1916.

**Flying Officer.**—Temporary Second Lieut. J. F. Morris, General List; July 12th, 1916.

**Flying Officers (Observers).**—Temporary Second Lieut. A. D. Finney, R.A., and to be transferred to the General List; October 22nd, 1915. October 25th, 1915: Temporary Second Lieut. C. A. Bourne, R.A., and to be transferred to the General List; Second Lieut. J. M. Burd, R.A., and to be seconded. Temporary Lieut. F. L. Robinson, General List. June 8th, 1916. July 1st, 1916: Lieut. H. H. James, Manch. R., and to be seconded. And to be transferred to the General List: Temporary Second Lieut. T. J. West, E. York. R.; Temporary Second Lieut. J. Wedgwood, Suff. R.; Temporary Second Lieut. G. McDiarmid, R. Sc. Fus.; Temporary Second Lieut. E. L. Roberts, E. York. R.; Temporary Second Lieut. W. Birch, Norf. R. July 6th, 1916: Second Lieut. E. W. C. G. De V., Viscount Glentworth, War. Yeo. (T.F.); Temporary Second Lieut. H. I. Hanmer, S. Staff. R., and to be transferred to the General List.

**Balloon Officer.**—Capt. R. W. Bruce, Canadian General List; July 18th, 1916.

**Memoranda.**—The under-mentioned to be Temporary Second Lieutenants for duty with R.F.C.: Pte. B. W. Morris, from A.S.C., M.T.; July 10th, 1916. August 5th 1916: Gnr. O. Longley, from H.A.C. (T.F.); Brian B. Lemon, from H.A.C. (T.F.).

**Supplementary to Regular Corps.**—The under-mentioned Second Lieutenants to be Lieutenants: June 1st, 1916: (Temporary Capt.) H. I. F. Yates, (Temporary Capt.) E. H. Colman, C. E. Wardle, J. A. W. Bourne, (Temporary Capt.) C. P. Grenfell, J. G. McEwan, G. B. Bulman, D. B. Sanders; June 13th, 1916. July 1st, 1916: E. A. E. Wood, J. D. Latta, (Temporary Capt.) E. B. Broughton, Temporary Capt. W. T. L. Allcock, (Temporary Capt.) W. G. B. Williams, E. W. J. Payne, A. P. Thurston. Second Lieut. R. True relinquishes his commission on account of ill-health; August 5th, 1916. The under-mentioned Second Lieutenants (on probation) are confirmed in their rank: R. T. Colley, H. Hamer, D. D. Fowler, W. L. Grech, K. L. Caldwell, G. G. Callender, R. Watts, C. R. Young, J. L. Luntley, H. A. Rigby, H. Weakley, E. F. B. Curtiss. The under-mentioned to be Second Lieutenants (on probation): Reignald M. Charley; June 14th, 1916. F. Ashworth; July 7th, 1916.

The following appeared in a supplement to the *London Gazette* issued on August 5th:—

**Flight-Commanders.**—From Flying Officers, and to be Temporary Captains whilst so employed. July 20th, 1916: Second Lieut. J. T. Whitaker, A.S.C.; Second Lieut. M. Le Blanc-Smith, Special Reserve. Capt. D. J. Sheridan, R. Ir. Fus., from a Flying Officer; July 23rd, 1916.

**Flying Officers.**—Second Lieut. R. Watts, Special Reserve; July 13th, 1916. July 17th, 1916: Temporary Second Lieut. F. T. Bridger, K.O. Scot. Bord., and to be transferred to the General List; Second Lieut. H. Hamer, Special Reserve; Second Lieut. K. L. Caldwell, Special Reserve; Second Lieut. G. G. Callender, Special Reserve. July 18th, 1916: Temporary Second Lieut. (on probation) J. L. Bamford, R. Sc. Fus., and to be transferred to the General List; Second Lieut. R. T. Colley, Special Reserve; Second Lieut. D. D. Fowler, Special Reserve; Temporary Second Lieut. E. S. Williams, General List; Temporary Second Lieut. G. Ross-Soden, General List. July 19th, 1916: Temporary Lieut. R. H. Hood, R. Scots, and to be transferred to the General List; Temporary Second Lieut. E. Burton, R.E., Special Reserve; Second Lieut. W. L. Grech, Special Reserve.

**Assistant Equipment Officer.**—Second Lieut. M. V. Barton, Special Reserve; July 10th, 1916.

**Memoranda.**—The under-mentioned to be Temporary Second Lieutenants:—July 29th, 1916: Corpl. H. B. Dell, from R.F.C., for duty with the Military Wing of that Corps;

Trumpeter C. W. Langlands, from H.A.C. (T.F.), for duty with R.F.C.

**Supplementary to Regular Corps.**—Second Lieut. (on probation) F. Ashworth is confirmed in his rank.

The following appeared in a supplement to the *London Gazette* issued on August 7th:—

**Adjutants.**—Qmr. and Hon. Lieut. S. J. Payne, R.F.C., from an Assistant Equipment Officer; May 13th, 1916. June 11th, 1916: Temporary Lieut. C. C. Treatt, N. Lanc. R.; Temporary 2nd Lieut. J. Rubie, 4th D.G.; Capt. J. W. Cruikshank, Durh. L.I., Special Reserve, and to be seconded; June 21st, 1916.

**Assistant Equipment Officers.**—2nd Lieutenants, Special Reserve: P. Craven; July 8th, 1916. K. W. P. Hindley; July 12th, 1916. July 15th, 1916: P. A. Albrecht, L. F. Bennett, H. R. Brutey, E. S. Cohen, C. A. Cuthbert, H. Darnell, E. McM. Howes, R. L. Hubball, O. Lindquist; Temporary Second Lieut. L. Macdonald, General List; Second Lieut. W. A. Robson, Special Reserve. July 21st, 1916: Second Lieutenants, Special Reserve: S. A. Harding, E. F. B. Curtiss, H. Weakley. Temporary Second Lieut. A. E. Biscoe, General List; July 24th, 1916.

**Supplementary to Regular Corps.**—The undermentioned to be Second Lieutenants. July 7th, 1916: R. L. Hubball, P. Craven, P. A. Albrecht. W. A. Robson; July 10th, 1916. The undermentioned to be Second Lieutenants (on probation): A. Young; July 7th, 1916. W. H. Trinder; July 8th, 1916. A. Weatherhead Thomson; July 17th, 1916. L. L. Carter; July 22nd, 1916. July 24th, 1916: F. H. Sanders, W. F. C. Nason, C. S. O'Grady; July 25th, 1916. S. Willmet; July 29th, 1916.

## Central Flying School

The following appeared in a supplement to the *London Gazette* issued on August 2nd:—

**Instructors.**—Capt. C. G. Bell, Special Reserve, a Flight Commander, vice Lieut. (Temporary Capt.) G. D. Hill, 7th Hrs.; July 11th, 1916. Lieut. (Temporary Capt.) J. P. C. Cooper, Special Reserve, a Flight-Commander, vice Lieut. (Temporary Capt.) E. O. Grenfell, R.A.; July 12th, 1916. Capt. (Temporary Major) F. G. Small, Conn. Rang., a Squadron Commander, vice Capt. (Temporary Major) G. D. Mills, Notts and Derby R.; July 13th, 1916.

**Instructor in Theory and Construction.**—Capt. G. Adams, S. Lan. R., an Equipment Officer, vice Capt. (Temporary Major) J. H. A. Landon, Essex R. (T.F.); July 11th, 1916.

**Officer in Charge of Test Flight.**—Capt. (Temporary Major) G. D. Mills, Notts and Derby R., a Squadron Commander, from an Instructor, vice Capt. (Temporary Major) J. E. Tennant, S. Gds.; July 13th, 1916.



# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## New Club Premises.

**Alteration of Rule 50.**—At the Special General Meeting of the Members held on July 27th, 1916, it was unanimously resolved that Rule 50 be altered as follows:—

"RULE 50.—For the year 1917 and thereafter the subscription for Members shall be £5 5s. od. per annum, and for Lady Members £2 2s. od. per annum, or such other sum as may be decided upon in General Meeting, and the entrance fee £2 2s. od., or such other sum as the Committee may from time to time determine."

The arrangements for the Club House are not yet completed, but full particulars will be issued shortly.

## THE FLYING SERVICES FUND administered by

## THE ROYAL AERO CLUB.

The Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of

the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

## Subscriptions.

	£	s.	d.
Total subscriptions received to August 1st, 1916	10,806	1	8
Collected at the Westland Aircraft Works,			
Yeovil (Forty-third contribution) ..	..	0	19 2

Total, August 8th, 1916 .. .. 10,807 0 10

B. STEVENSON, Assistant Secretary.  
166, Piccadilly, W.

# FROM THE BRITISH FLYING GROZINDS

## Grahame-White School, Hendon.

Straights with instructor last week : Messrs. Alty, Duncan, Edwards, Fisher, Lyles, Mills, Ormerod, Saunders, Soden, Shadwell, Styles and Ward. Circuits with instructor : Messrs. Ballard, Cockell, Drew, Jamie, Rodocanachi and Stevens. Eights with instructor : Messrs. Donald, Goodhart, Kay, Keymer, and Wellinkar. Eights alone : Mr. Cooper.

Instructors : Messrs. Manton, Winter, Pashley, Biard and Hale.

## Beatty School, Hendon.

The following pupils were out during last week : Messrs. Cuthbert, Hathaway, Gadsden, Mitchell,

extra practice learning spirals, tail slides, vertical banks, &c. With Instructor Glegg : Messrs. Stamps, Course, Mayer, Lieut. Malden, Messrs. Yuill, Smith, Maude, and Lieut. Packman ; Lieuts. Malden and Packman doing short hops, the others rolling practice.

The following pupils should soon qualify : Messrs. Le Grice, Cowney, Russell, Graham-Davies and Rayne.

Royal Aero Club Certificate taken by Mr. Worswick. Hall Government type tractors in use.

## London and Provincial School, Hendon.

Pupils doing straights last week : Messrs. Fox, Birkin, Dunnett, Randell, Rogers, Lewis, Mander



Some pilots who have recently taken their Royal Aero Club tickets at the Hall Flying School, Hendon.—  
(1) Mr. G. J. Halliday, (2) Mr. Eric Armitage, (3) Mr. F. Smith, (4) Mr. J. Collier, (5) Mr. G. S. Deane,  
(6) Mr. H. F. Skinner.

Curry, Earl, Rudd, Skeet, McPherson, Garlick, Towson, Austen, Elliott, de Wilde, White, Wood, J. Squires, Sach, Wilkinson, Hick and Owen.

The instructors were Messrs. G. W. Beatty, G. Virgilio, L. L. King, A. E. Mitchell, and H. Fawcett ; the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes, and Caudron dual-control and single-seater tractor biplanes.

## Hall School, Hendon.

Pupils receiving instruction during last week :— With J. Laurence Hall : Messrs. Russell and Graham-Davies. With Cecil M. Hill : Messrs. Gudger, Worswick, Rayne, Le Grice ; also Orton, Cordner, Davis, Russell, Cowney, Lieut. Malden, passenger flights in front seat with dual control. Mr. Rand was taking

and Quayle. Circuits and eights : Monsieur J. Leman.

Instructors : Messrs. W. T. Warren, M. G. Smiles and W. T. Warren, jun.

Royal Aero Club Certificates were taken by Messrs. A. E. Bush, W. Sivewright and O. Vickers. An excellent ticket, which should have been included in last week's report, was taken by Mr. D. L. Daly on July 22nd.

## Ruffy-Baumann School, Hendon.

Pupils with instructors last week : Messrs. Holmes (1 h. 55 mins.), Carr (52 mins.), Babington Smith (20 mins.), West (1 h. 56 mins.), Barnes (50 mins.), Trubridge (44 mins.), Fanshawe (40 mins.) and Hayes (42 mins.). Pupils going alone : Messrs. Barnes and Holmes.

Tickets taken: Messrs. De Balme, Williams, Thomas, Westlake and Barnes.

Instructors: Messrs. E. Baumann, F. Ruffy, A. Baumann, and A. Thomson.

60 and 50 h.p. Ruffy-Baumann dual-control biplane machines in use.

## Bournemouth School.

Pupils rolling alone last week: Messrs. Kennedy, Wingfield, Montgomery, Holland, Lieut. Lloyd-Owen, Messrs. Davies, Ross, and Wilmott. Doing straights alone: Messrs. Pritt, Brandon, Turner, Hammersley, Hinchliff, J. B. Smith, and Sergt.-Major Fenn. Half-circuits alone: Messrs. O. Wilson, J. Wilson, Little,

H. Smith and Daniel. Figures of eights and circuits alone: Mr. J. L. Barlow.

Instructors: Messrs. S. Summerfield and E. Brynildsen.

Two 35, one 45, and one 60 h.p. Caudrons in use.

Mr. J. L. Barlow took his ticket during the week on a 60 h.p. Caudron after completing his *brevet* tests. He rose to a height of close on 3,000 ft., and concluded with a v.p.

The spectators who visited the aerodrome during the week witnessed some fine flying by Mr. Summerfield, quite a lot of passengers being carried by the same pilot. During the week several Service machines again "called."



## THE "X" AIRCRAFT RAIDS.

IN view of the decision of the Government not to allow details of places visited by enemy aircraft to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

### "X 40" Raid, July 31st.

#### German Version.

*Berlin, August 1st.*

"During the night of July 31st-August 1st several naval airship squadrons successfully attacked London and the Eastern Counties of England. They dropped numerous bombs on the coast works, anti-aircraft batteries, and industrial establishments, which were important from a military point of view. In spite of heavy firing by the naval forces which began at our approach all our airships returned undamaged."

The following *communiqués* have been issued by the Field-Marshal Commanding-in-Chief Home Forces:—

### "X 41" Raid, August 3rd.

1.30 a.m.

"A number of airships crossed the coast in the eastern counties shortly after midnight this morning. Their objective has not yet been definitely ascertained, as the raid is still proceeding. Some bombs have been dropped in various places."

4.30 a.m.

"The raid appears to have been carried out by six or seven airships. A considerable number of bombs are reported to have been dropped at various places in the Eastern and South-Eastern Counties, but no definite reports have been received. No military damage has yet been reported. Many anti-aircraft guns were in action, and at least one airship is reported to have been hit."

4 p.m.

"Several hostile airships attacked the Eastern and South-Eastern Counties last night."

"The first reports of the raiders' arrival were received at about midnight. From these accounts it would seem that not less than six airships were attacking the counties of Norfolk, Suffolk and Essex more or less simultaneously. The raid lasted about one hour and a half. Except at one point, the raiders did not penetrate very far inland, but contented themselves with dropping a few bombs at a time on widely distant localities, mainly near the sea. Several bombs, in fact, are reported as having fallen into the sea."

"Anti-aircraft guns came into action at one locality, but the raider there attacked made good his retreat."

"In conjunction with this attack one airship was making for the coast of Kent. Many observers report that a second airship followed the first; the number of bombs dropped in this attack make the statement appear quite possible. The anti-aircraft guns came into action, and one, if not two, hits were claimed against the first raider."

"A total number of 80 bombs has been accounted for up to date, inclusive of those seen as falling into the sea."

"The total damage is astonishingly small; nine horses were killed and three others injured."

"The military object of the raid is not apparent."

#### German Version.

*Berlin, August 3rd.*

"Last night a great number of our airships again attacked the South-Eastern Counties of England, and dropped successfully a large number of explosive and incendiary bombs, especially on London, the naval base at Harwich, on railway works, and on industrial establishments in county Norfolk, important from the military point of view. On their approach the airships were attacked by enemy forces under rays of numerous searchlights, but they returned all undamaged."

The Press Bureau is officially informed that the above statement is practically untrue from beginning to end.



## FLYING AT HENDON.

LOOPING displays and passenger flights predominated last Saturday's and Sunday's work at Hendon. On Saturday the weather conditions were very good, and there was in consequence quite a fair amount of flying. The atmosphere was extremely clear, and passengers had an excellent view from above of London and the surrounding country for miles. H. C. Biard, B. F. Hale, Marcus D. Manton, C. Pashley and J. S. B. Winter were kept very busy on the 80 h.p. Grahame-White three-seater biplane taking up passengers. W. T. Warren, Jun., made a fine flight on the new L. and P. tractor, during which he executed a loop. This promising young pilot handles this 'bus extremely well, making first-class landings. L. L. King made a flight on the all-Beatty-Wright, and further variety was given the proceedings by the unofficial flights on sundry B.E. 2c's, Curtiss tractors, &c. Eric Pashley paid his brother a flying visit on a de Havilland scout, upon which he put up some astonishing stunts.

On Sunday the afternoon opened with threats of thunderstorms, but cleared as the time passed. The wind, however,

increased as the weather cleared, and flying was, therefore, somewhat retracted. The Grahame-White three-seater was, as usual, kept busy with passengers, and H. Sykes brought out the Martinsyde, but was prevented from doing much flying by a series of misfortunes. Both M. G. Smiles and W. T. Warren, Jun., took up passengers on the new L. and P. tractor, and looped on several occasions. On one of these flights Smiles, with a lady passenger, made 10 loops in succession from a height of 3,000 ft., to which altitude he took 10 mins. to climb without forcing. The last flight of the evening was one in which "young" Warren took the writer for a short flight on the L. and P.

The impression obtained during this flight was entirely favourable. Not only did the machine demonstrate that it is exceptionally steady when negotiating "bumpy" air, but it certainly possesses an appreciable amount of inherent stability. When descending, the pilot, taking his hands off the control, switched off, and the 'bus, immediately taking up its gliding angle, automatically "carried on."



# ARMCHAIR REFLECTIONS

BY THE "DREAMER"



MANY highly interesting theories have been put forward from time to time upon the strange conduct of dogs when there is an air raid in progress. Many letters have also been written in the same connection. Most of these have been ventilated through the columns of the press; other animals—cats, chickens, and even snails—being periodically brought within the scope of these theories.

The other day I read a letter in the *Daily Mail*, signed "C. V. D." This seeker after enlightenment claims that on several occasions during the past 12 months bombs have been dropped within anything from 50 to 100 miles of his house, and that his dogs always seem to know that an air raid is in progress, and indicate their knowledge by incessant barking. Nor are his dogs alone in this respect, for the adjacent farmers have the same to report about their own dogs, who are all alert, uneasy, and noisy.

He asks whether it is possible that dogs can hear at a greater distance than humans, and altogether appears to look upon the matter as uncanny.

There does not appear to me to be anything uncanny in the matter. I think it is more that man is unversed, and supposes that all other animals must of necessity be built on the same plan as himself with regard to the senses.

One has only to reflect for a moment to realise that the contrary holds in nature. Man cannot, for instance, approach a dog's extreme sensibility with regard to the sense of smell—a bit of luck sometimes for the human!—Just consider the way a dog will follow the track of another animal, hours or even days after that animal has passed that way, provided there has not been rain to destroy the scent.

Sight is a much more difficult thing to test in competition with man. But in dogs trained to the hunting of game, large and small, we have evidences of extremely quick, if not long, sightedness. A dog will notice the slightest movement out of the ordinary in long grass, or the like, caused by the passage of some small animal, when the same would entirely escape the notice of man, or would be thought to be merely movement caused by the breeze.

And so as to hearing. For it is, in my opinion, hearing, about which there is nothing uncanny, that the dog calls into play when he gives notice that something unusual is afoot during an air raid. Now, it does not necessarily follow that because all, or nearly all, animals have the sense of hearing, that they are all equally sensitive to the same sounds.

For instance, I am deaf, or nearly so, to all sounds above a certain pitch. I cannot hear the tick of a watch, even though close to my ear. Sometimes my attention will be called in the night to the hissing of rain outside—I cannot hear it. Yet I will undertake to pick up the distant sound of an aero engine in an approaching aeroplane, minutes before any of those standing around. As example, and also as

showing my extraordinary long distance sight. On Saturday evening, leaving the Hendon aerodrome, I sighted an aeroplane up over the aerodrome at Chingford. The distance was, what? I do not know, perhaps 12 miles; it may be more. None of my friends could see it. I could not only see it, but I could hear it. Nothing extraordinary; simply that my ears, deaf to a high pitched sound, are extra sensitive to a low pitched one.

It is well known that a dog is sensitive to a sound of a high pitch. Why do we always whistle to call a dog to attention? It is because of his capability of hearing a highly pitched note.

I remember, long years ago, there were on sale in a shop in the Strand, some dog whistles which gave out no sound whatever. That is, it appeared to the human being that they gave out no sound. The fact is they gave a note so high in the scale of pitch that it was beyond the power of the human ear to distinguish any sound but the slight one given by the passage of the breath through the instrument. Yet a dog could hear it distinctly, even at a great distance. It may well be that a dog also hear lower sounds at a greater distance than humans. I am not a doggy man, and although I am very fond of them, have no great knowledge of their peculiarities.

It may be, therefore, that a dog can hear the sound of dropping bombs, or the hum of engines, at greater distances than we can. I am inclined to the belief, however, that what he hears is a note of a high pitch, possibly the passage of the propellers through the air, or the singing of wires, sounds altogether inaudible to us at any distance.

I am inclined to this belief because dogs do not, as a rule, take any great notice of the firing of guns. Dogs brought up to the sporting gun, take no notice whatever of its firing, unless it be discharged directly over its head, when it will cringe slightly. Even then, it is just possible that it is the singing of the pellets through the air that causes his momentary crouching, for I have noticed that a dog well out in the stubble, when partridge stalking is in progress, will crouch when shots pass above him, even when the gun which fired them is at a distance. I am, I say, not a doggy man, or I would try to learn something more about our four-footed friend than appears to be known. Why is it, I wonder, that a dog's eyes do not reflect? When I look into the eyes of a human I cannot penetrate beyond the surface. It is true they reflect. Eyes are honest in their reflections. I can read in them honesty, or its reverse purpose, love, kindness, fidelity, craftiness; but it is by reflection. When I look into the great, big, brown eyes of some dogs, I see beyond the eye, right down into depths unfathomable. I would love to study dogs had I the time. Meanwhile there are those students who can see nothing, and call purblindness in themselves, uncanniness in their canine friends.

# AVIATION IN PARLIAMENT.

## HOUSE OF LORDS.

### The Royal Aircraft Factory.

In the House of Lords on August 1st, Lord Montagu had on the paper a notice to ask the Government whether they were prepared to circulate the recent Report on the Royal Aircraft Factory; what steps would be or had been taken to carry out its recommendations, and what alterations, if any, had been made in the higher staff at the factory. The noble lord, said that he had on Thursday week deferred this question, originally put down two months ago, and the case he had to put had been strengthened in the interval because there had been an effort on the part of those responsible for the Royal Aircraft Factory to put their house in order. The report, he thought, justified any remarks he had ever made about the Royal Aircraft Factory. The expenditure this year would probably be about a million sterling, which was a great deal for a factory which was theoretically doing experimental work. With regard to the figures of percentages, it was stated that Colonel O'Gorman had checked them, but he thought Colonel O'Gorman must unwittingly have misled the committee. He thought the number of men employed in the stores department—560—was an excessive number. With regard to the recommendation of the report that there should be skilled civil management of the factory, he thought that, if it was to continue in its present form, that was wise, but if it was going to continue only as an experimental depot it did not matter. Passing to the report made by the Air Board to the War Committee, he congratulated the Air Board on the courageous way in which they had handled the matter; but he thought it would be a pity if Colonel O'Gorman's services to the State should be lost in an experimental sense, and he was glad to see the suggestion that he should be appointed as consulting engineer to the Director-General of Military Aeronautics at the War Office.

He cautioned the Air Board that, in his opinion, Sir David Henderson had far too much to do already. He was not only a member of the Army Council, and in command of the R.F.C., but he was also the responsible head of the Royal Aircraft Factory. The time had come when that distinguished officer should choose whether he preferred to remain a member of the Army Council or the officer commanding the Royal Flying Corps, or to have nominal control of the Aircraft Factory. It was quite impossible that he should continue in the three capacities; it would only lead to further trouble. It was quite clear that discipline had been slack and that there had been pilfering and excessive scrapping. Primarily, Colonel O'Gorman, as head of the factory, was responsible, but Sir David Henderson could not be exonerated, because he was the senior officer, and Colonel O'Gorman only did what he was told.

The other day he had made some statements before the Judicial Committee which had been shut out to a certain extent. One of the charges was that there had been unfair preparations in connection with the visit of the King to the Royal Aircraft Factory. He had evidence which had been sworn to, and which had been taken down in his presence. One man said that the day before the visit machines—old, new, and partially wrecked—were piled in the shops, and that vacant shops were furnished with spare parts to provide an appearance of congestion, and that a photograph of one shop was taken for the War Office to show the congested state of the premises. He had that kind of evidence *ad infinitum*. He had a letter from the wife of a late member of that House, who said a very valuable artisan of theirs had been three months at the factory and had not done a full day's work. He had evidence of unsuitable people being employed on different jobs. For instance, here is a lad of about 17, unskilled and rather delicate, who was put on at £2 2s. a week as overlooker, to walk round and see if there was any smoking, &c. There was also the case of the man MacDonald, who was charged at Aldershot with having unlawfully in his possession things belonging to the Aircraft Factory. The man made no secret of the fact that he was building at home an aeroplane of his own design; and according to his statement he was allowed to take away parts of the machine by persons in authority at the factory. Some of the parts were so large that it was impossible for them to be removed without the knowledge of those in charge. In fact, it was jocularly remarked that if he were strong enough he could have taken away a whole shed. It was quite clear that there was a want of supervision at the factory.

When this man had got back, after giving evidence before the Committee of Inquiry in Westminster Hall, he was arrested. It might have been a coincidence, but it was a curious kind of coincidence, especially after they had had a pledge that witnesses should not be victimised. Another witness on returning to the Inquiry room to get some papers which he had left behind heard one officer say to another: "This is the adventurer who went up to give evidence against us," on which the other officer remarked: "Yes, you can never tell what sort of fellows you have in the factory these days." He thought those experiences pointed to an effort to browbeat and intimidate witnesses.

He was one of those who thought the Government never did anything so well as the private individual. The Government factory was more expensive and less efficient than the factory run by an individual or company. What was wanted was a large trade in the private manufacture of aeroplanes, well established and strongly financed. There was no doubt that the best machines were those designed outside the Government factory.

Earl Curzon said the first two points of the question on the paper were answered by the publication of the report upon the Royal Aircraft Factory, and the report thereon of the Air Board. As to the point in relation to changes in the higher staff of the factory, no one knew better than the noble lord that both business organisation and scientific knowledge were required in the running of so great a concern. Those two qualities were not necessarily found in the same person. It was for that reason that Colonel O'Gorman was taken to the War Office to attend to the scientific side by acting as consulting engineer to the Director-General of Military Aeronautics, and they were now searching for and hoped soon to find a first-rate business organiser for the factory. He did not think the noble lord was quite fair in what he said as to the present position of Sir David Henderson. The noble lord gave the House to understand that Sir David Henderson was a pluralist of an undesirable character, combining two or three functions which ought not to be found in the same individual. Nobody knew better than the noble lord that Sir David Henderson was placed upon the Army Council because he was the Military Director of Aeronautics, and nobody ought to be better pleased than the noble lord, who always urged the claims of the Air Service, that the head of the military branch of it should be able to enforce his views by means of his seat on the Army Council.

The Royal Aircraft Factory was a War Office institution. It was started some time before the war. Therefore the Air Board had nothing to do with it up to the moment that they came into existence. That fact dispensed him from saying much in reply to the speech of the noble lord in regard to it. But he was bound to say that, having read the evidence put before the Committee of Inquiry, he was astounded, nay, even scandalised, at the manner in which gossip, rumour, invention, and charges—very often wholly unsupported by evidence—were brought before the Committee. The noble lord himself gave evidence; and he did not mean to imply that that evidence deserved the adjectives which he had used; but he thought it was improper for the noble lord to come down to the House, after those charges were investigated by the Committee, and repeat them in detail and at length. The officials of the factory declared that those charges were untrue. They absolutely denied the story that there had been "window-dressing" on the occasion of the Royal visit. As to the witness MacDonald, he asked for one day's leave and was absent two and a-half days; during his absence he gave evidence before the inquiry, and on his return boasted that "me and Montagu have got them cold." He was found to be in the unlawful possession of things taken from the factory, though he denied it on oath, and was arrested. Since the war began less than 2 per cent. of the whole of the aeroplanes of the country had been made in the factory. Nevertheless, in spite of the views that are held—I think he thought rightly held—by the noble lord as to the undesirability of turning the factory into a considerable manufacturing centre, the Burbidge Committee recommended that the manufacture should be increased. No doubt that would be an excellent thing for the factory and from the point of view of the balance-sheet. But the reasons against it, which were really overwhelming, are in the first place that it is no part

of the work of the factory to manufacture on a large scale. In the second place, he was convinced it would revive and increase the hostility of the trade. The view taken by the Government was that the main work of the factory must continue to be experimental rather than manufacturing. But in regard to the trade he declared that it was the desire of the Government to encourage private manufacture. At a meeting of the Air Board they had heard what the manufacturers had to say, and he had been rejoiced to hear how small was the area of complaint. Really what it came to was that they wanted more skilled labour to carry out a larger programme.

With regard to the smaller charges against the factory—such as that there had been idleness, an excessive number of workmen employed, that it was a refuge of shirkers—all he could say was that so far as he had been able personally to go into them he had found great difficulty in getting them substantiated. But if the noble lord liked to put the charges about which he was satisfied there was sound evidence in a way in which they could be investigated he promised that it should be done. But he prayed the noble lord not to come down to the House and use it for ventilating matters too petty for their lordships' attention and incapable of reply, because no one had the material to meet them.

In reply to the question as to what were the functions of the Royal Air Factory, he could define them as follows:—(1) Trial and experiment; (2) research; (3) preparation of drawings; (4) repairs; (5) the manufacture of "spares." He hoped he had shown that there was a very definite place in the military organisation of this country for the Royal Aircraft Factory, not only while the war was going on, but afterwards, and he believed that the factory, improved no doubt by the criticisms to which it had been subjected and the times through which it had gone, would take a definite and increasing part in the air defence of the future.

Lord Montagu proceeded to reply, when he was met with cries of "Order," and he resumed his seat. The subject then dropped.

#### IN THE HOUSE OF COMMONS.

In the debate on the Consolidated Fund Bill in the House of Commons on August 1st, Mr. Pemberton Billing said: I apologise for intervening in an Irish debate by introducing another subject of national importance. In fact, I feel I cannot allow what happened at Question Time to-day to pass without some form of protest. I have received in this House many insulting replies to questions I have asked—

Mr. Deputy-Speaker: Order, order! That is not a parliamentary word to be used in respect of answers given by Ministers or by a member's colleagues in this House.

Mr. Billing: Then may I say insolent reply. Is that possible?

Hon. Members: You will be suspended if you say that.

Mr. Deputy-Speaker: That is also an unparliamentary expression.

Mr. Billing: Then all I can say is that I have received replies to which it is impossible to give a Parliamentary term. To-day I have received a type of reply which, to use an Irish expression, is even worse than no reply at all. It was silence. As one who represents to some extent the Air Service in this House, it seemed right to me to ask whether, in view of the raids on several counties of this country, it was considered desirable to institute reprisals; and to that question no reply was forthcoming. I would like to tell the Prime Minister, if he were here, and as he is not here I would like to address myself to the Treasury Bench, which is unusually full, and say to them that it is a mistake to believe that because, for the past six months, there has been no agitation on behalf of the public for protection from Zeppelin raids, and no agitation to carry the air war into the enemy's country, that the public are in any way satisfied. I have held a number of meetings all over this country in the last six months and I have addressed some millions of people, and I can assure the Treasury Bench that the people of this country are not satisfied either with the air defences of this country or with the offensive against Zeppelin bases. I consider that we have—and, in fact, to my personal knowledge, we have—aero-planes and men and bombs in this country to carry out reprisals. I would suggest to the Government that it is time that we took our gloves off in this matter as in some other matters in connection with the conduct of this war. Six months ago I offered the right hon. gentleman who is now

#### Petrol in the Air Service.

In the House of Lords on August 3rd Lord Strachie inquired as to the principle upon which petrol had been allowed by the Petrol Control Committee. In the course of his speech he said he was informed, as regards aeroplanes, that even if they go out for a very short flight, when they come down the whole of the petrol is simply emptied on to the ground and wasted.

Lord Derby stated that Lord Strachie made an accusation, and he wanted to hold him to it. He said that in the Aeroplane Service when the men come back from a flight they empty the whole of their petrol tanks on to the ground. Can he give a single instance where that has occurred?

Lord Strachie: I have been so informed.

The Earl of Derby: Can the noble Lord give me the name of his informant and where it happened? I deny it absolutely.

Lord Strachie: I accept the noble Earl's denial at once, but he knows very well that I cannot give the name of my informant unless I have that person's permission.

The Earl of Derby: Nobody ought to make an accusation of this kind, which amounts to a charge of deliberate and disgraceful waste of Government material, without being prepared to give the reasons, the name, and the whole of the facts. If the noble Lord is not prepared to do that he should not have made the accusation. Of course, these petrol tanks have to be emptied; that is well known, and the reasons why are well known. But when the noble Lord goes on to state that when the aeroplanes come down the petrol tanks are invariably emptied on to the ground, I say there is not a word of truth in it, and I think he ought to withdraw such an accusation against the Aeroplane Service.

Lord Strachie: My Lords, in asking leave to withdraw my motion, I am bound to refer to the unprovoked attack which the noble Earl made upon me. Though I said at once that I accepted his assurance, he accused me with violence of language. I should have thought that the noble Earl would have been the last person to throw stones in that direction.

Secretary of State for Scotland to lead him by the hand and show him these bombs and these machines and these men, and now I repeat that offer to anyone on the Treasury Bench who will accompany me. I would like to ask how many Zeppelin bases have been bombed or attacked during the last six months? Surely the authorities must have known that the only reason why we were not attacked was that it is not a Zeppelin's business to attack by day, and that these attacks would take place immediately these conditions were propitious. At the present time we may say that the Zeppelin season has commenced, and unless some steps are taken, steps for the more adequate defence, or at least unless the public are shown that it is our intention to act in this matter, I think that the agitation that we had six months ago will be repeated. I would like to ask the Government to tell us how much damage it is necessary for Zeppelins to do before any definite action is taken. I wonder whether if a well-directed bomb were dropped in the centre of this House some action would be taken—whether it would do any great harm it is not for me to say, but I think it would have this effect, and it would wake the Government up in this direction at least. In the last three days I have had many telegrams and letters from all over the country with reference to the raid on Saturday night. I know that a mere Zeppelin raid is not a matter that this House regards as a very serious thing, and I know that this House has very many serious questions to deal with. There are so many broken pledges of the Prime Minister which had to be shifted, twisted or turned, and there are so many excuses which have to be given to all those whom he has deceived, that when it comes to the question of a mere Zeppelin raid, of course, in American parlance, it does not cut much ice; but it does cut a considerable amount of ice with those people who are interested in the Air Service of this country. I have pointed out before that the fact that no military damage is done is not the whole story. You cannot have a raid by one or 10 Zeppelins, dropping one or a thousand bombs, and say that no military damage is done. There is military damage done if thousands of special constables are kept up till 3 o'clock in the morning, as they were to my personal knowledge yesterday morning.

Mr. J. Samuel: They do not object.

Mr. Billing: But most of these men are carrying on work of national importance, and if they spend the whole night

walking about with a whistle and a stick they cannot do their work next day with the same amount of energy with which they would otherwise do it. Not only that, but these raids hold up munition workers and trains and transport throughout the country, and that is a serious matter. The Zeppelin season has now commenced just before the House of Commons adjourns, which it will do, and leave the country to its fate until we meet again in October. But I think before we adjourn we ought to have some sort of undertaking from the Prime Minister that some form of offensive which is the real form of defence by the Air Service will take place. Another matter I would like to call attention to are the very foolish inspired communications which are issued by the Press Bureau to the public. Only yesterday I read of a case in one of those communications of a pilot who engaged a Zeppelin 30 miles from the East Coast. He aimed two trays of a Lewis gun into the Zeppelin, and in putting a third tray the gun burst and stunned him. I have used a Lewis gun myself many times, and I have never known anything likely to burst and stun the pilot without doing him pretty considerable harm. Then it is stated that the pilot was stunned and became unconscious—this was evidently a single-seated machine—and when he recovered consciousness the Zeppelin had disappeared. That is the sort of story which might be told in the nursery, but to anybody who understands aviation it is an insult to his intelligence to issue such a communication as that. The pilot's name was not mentioned, and presumably the pilot was the only one present, and therefore the only one to give the story. We all know that to engage a Zeppelin with a machine gun unless it has explosive bullets is not much good, but to issue such a statement and to bring it out in the Press in big headlines is really too fatuous for anything. It is typical of what the Government do all day long. They are using the floor of this House as a megaphone to shout statements to the public, which before very long are found to have no foundation in fact. I was lunching to-day with some of the finest air pilots, and they simply laughed at the report authorised to be issued by the Press Bureau. There is nothing wrong with the pilots. I think the House admits that, and I think the country admits it. We have the men, and they are quite prepared to go anywhere and do anything, and they have all the bombs and the machines as well.

As far as these raids which I have been referring to are concerned, I quite understand that the business of the Army Flying Corps is being carried out now a great deal better than has ever been the case before. They are doing their work, and they are occupied. I was referring on the raid question more to the Naval branch—the naval wing—of the Royal Flying Corps. At the present minute I think I can say that, with the exception of a few aeroplanes which they have in France, they are neither occupied nor justifying their existence or expense, and there is a very strong undercurrent of dissatisfaction throughout the Air Service. At the Air Inquiry—to which I cannot refer as the report has not yet been issued—I asked that the Royal Naval Air Service should be inquired into. Whether the First Lord of the Admiralty did or did not threaten to resign if that was done I cannot say. Anyhow, it has not been inquired into, and unless some drastic reforms take place in the naval branch I shall have things to say on the floor of the House of Commons, which I think will justify an inquiry.

Mr. Jonathan Samuel: Do I understand the hon. member to say that the other part of the Air Service is now perfect?

Mr. Billing: Not perfect. I should say that the other part of the Air Service is now much more efficient than it has been at any other time during this war.

Mr. Lynch: At this juncture I wish to rise on a point of order. My reason for interrupting the hon. gentleman is that his speech is so important that it ought not to be heard at 1 o'clock in the morning. We are here through having been deceived, no doubt, quite inadvertently, by the Prime Minister himself.

Mr. Deputy-Speaker (Mr. Maclean): That is not a point of order.

Mr. Lynch: Will the Home Secretary move the Adjournment?

Mr. Billing: I have not very much more to say. So far as the reports which I asked for earlier in the sitting are concerned I desire to put this to the House. I asked the Prime Minister that a certain report which had been made by the Minister of Munitions on a firm of engine-makers should be either laid upon the Table of the House or handed to the Air Committee. The reply I received was, "We know nothing

of such a report." Are we to understand that a Government Department, having been given a certain amount of particulars and the date of a report, finds it absolutely impossible to trace that report from one Department to another? I will give all the assistance I can to the hon. member for Rugby (Major Baird) in the matter. It was a report made by the Minister of Munitions on the firm of Austin, engine-makers in Birmingham. I have seen the report, and so I know that it exists. In fact, I have a copy of it, and if it is not produced I shall read it to the House. That report states that the Royal Aircraft Factory engine is a mechanical impossibility and an engineering scandal, that it has caused more trouble, friction and delay in their works than any other proposition the firm has ever had to deal with. The report states, or infers, that it is in the interests of the country that these engines should not be made. Yet they have been ordered in thousands.

Sir A. Markham: Who made the report?

Mr. Billing: I do not think I can say who made the report, but if the Government say it is not in existence I will hand a copy to the hon. gentleman representing the Air Committee on the Treasury Bench. But this report must be forthcoming. It should be handed to the Air Committee as something on which to base their decision as regards this particular type of engine, which, when one has done and said all, is the crux of the whole question. It is the engine which caused me to make the speech I made in this House some months ago when I said—as I repeat—that it was tantamount to murder to send men up in machines engined with this type. Gradually but surely all the people who have identified themselves with air reforms in this country are beginning to appreciate that this engine is not only a mechanical impossibility, but a scandal, and I consider it is most essential that the Air Committee should have that report.

Then we had the Committee that reported on the Royal Aircraft Factory. They go down there and make a report at some considerable length. What is the result? The Air Board is another organisation which the Government has brought into being to defend themselves on these air problems, and Lord Curzon has said that his report is tantamount to nonsense, and that they do not agree with the findings of the report. I should like to ask what is the good of appointing an expert Committee to go down and report on a factory, and when they report and say the factory is this, that and the other, the Air Board say, "We don't agree with you at all." In the meantime an Air Committee is reporting on something else, which, when you have done and said everything, is only half, and the lesser half, of the service. What will be the position if Lord Curzon takes up the same attitude to the Air Committee? No, I really think it is time that the Government and the country took the air services of this country into serious account. It is reasonable. I submit, for some of us who fight, perhaps, a lone battle in this House with our particular beliefs and particular work, to take exception to the evasive replies which we receive from the Treasury Bench. I cannot expect Members of this House who are interested in other matters to be interested in the air. But I do think I have a right, and do say that it is my duty, to deal with this problem. I was returned to this House on a very definite mandate, from a constituency which had suffered considerably, to try to get some reforms brought about in our air services, and of the methods I have adopted in this House and outside to obtain those reforms I am the better judge. Some reforms have been carried out, but there is a very great deal more to be done. I do not wish to detain the House any longer. I simply want to say that I do protest against dealing with air raids as we are dealing with them and not retaliating in any way whatsoever, and I appeal to the Government for action in this matter, at least, if they have not the courage to take off the gloves in other matters. I am perfectly confident that the vast majority of the British people would be behind them if they would give orders that all the men and all the machines and all the bombs that are at present in this country doing nothing were to be employed in returning the raids and retaliating on the enemy for the raids they are making over this country. There is absolutely no reason why that should not be carried out, and if the Prime Minister would advise our enemy that for every raid that takes place over this country we would raid Germany on two occasions while we had a machine and a man left it would do more to stop Zeppelin raids than any amount of high faluting talk which takes place in this House very frequently in my presence.

Major Baird: The hon. member referred quite naturally to the reappearance of the Zeppelin raiding season, and invited the Government to announce their determination to make reprisals. I cannot imagine a more unpractical way of dealing with the question than to say in this House what we intend to do with regard to the enemy. Surely nothing would please us better than if the Germans announced to us when it is their intention to raid this country. I must say that the hon. gentleman's closing remarks, in which he said that he advocated all the men, all the bombs, and all the machines now in this country, which are doing nothing, being sent over to raid Germany, show in an hon. member who has had the experience he has had in the Air Service an extraordinary forgetfulness—

Mr. Billing: I was referring to suitable machines.

Major Baird: That was a very important omission. The hon. member said, as he has said in the country, that all machines in this country which have duties allotted to them by competent airmen should be taken off those duties and sent to raid Germany. In the first place, a great many of them could not go to Germany. As the hon. member knows, they were not built to go to Germany, and to send officers off on machines of that sort would indeed be murder, to use an expression which the hon. member has employed in connection with the Air Service. It is very unfair to the Air Service to use expressions like that, particularly when they come from an hon. member who has belonged to the Naval Air Service, and therefore speaks with some authority. That the hon. member should make use of an expression of that kind is very unjust and very unwise, and is likely to create an impression in the country which would be most unfortunate. The hon. member alluded to large stores of explosives. I should have thought he would have noticed from the morning newspapers that we dropped a little matter of 7 tons of explosives on the German lines yesterday from the air. That was reported in the *communiqué* of the Army, and the hon. member really must allow the officers who are directing our operations as a whole to decide where we can use our forces most effectively. If you have a choice between dropping explosives on the fighting men, ammunition trains, depôts and artillery of the enemy in the field on the one hand, and on the peaceful towns where the women and children belonging to the soldiers are living on the other, I for one would plump for dropping those explosives on the soldiers every time.

I venture to think when there is talk at large about going to Germany directly a Zeppelin shows its nose over here that we prefer a very much more honourable means of retaliating, not on the women and children of Germany, but on the soldiers of Germany, which is what we do. I do not for a moment say that the time may not come when there may be unpleasant surprises in store for Germans in their own country, but it would be extremely unwise to say anything on that point, or to announce in this House what was our intention in that respect. The hon. gentleman referred to the men, and the machines, and the explosives to which he was prepared to lead anybody by the hand. We know quite well that we

have the machines, but I venture to remind him that they are allotted to specific work; that the necessary rising up of machines is immense in the conduct of operations such as we are engaged upon now, and really I do think the hon. gentleman exaggerates if he imagines that there is a large stock of machines in this country that could be put to this use. Certainly they are not suitable. They have duties which they perform day and night, and I do not think I should have any difficulty in persuading him in private, as I have already had to do, that the machines are there and are rendering very good service.

With regard to the employment of special constables on the occasion of Saturday night's raid, I don't know what that trouble was. We do have special constables, and when a man undertakes the duty of being a special constable he is liable for duty when Zeppelin raids take place as well as anybody else. I do not see where the trouble comes in there. As regards the *communiqué* issued in connection with a combat between a Zeppelin and a naval aeroplane off the coast, I think the hon. member failed to notice that the *communiqué* was issued by the Admiralty. If he had noticed that, doubtless he would have called the attention of the Admiralty to this matter.

Mr. Billing: Am I right in supposing that the hon. and gallant gentleman represents the Air Service or the Air Services in this House—military, naval, or both?

Major Baird: The functions of the Air Board were laid down quite clearly in its reference, and I need not weary the House with that, and the hon. gentleman would not expect me to remind him of a subject which he is perfectly capable of understanding. Our reference was quite clear. We do issue a certain number of *communiqués* for the Royal Flying Corps, but the Admiralty issue their own *communiqués*. I do not think it is a matter of any importance, but it is the fact, and I hope the hon. gentleman will not think it discourteous on my part if I do not deal with that particular point.

Mr. Billing: There is still some confusion, then.

Major Baird: As regards the answer I gave the hon. gentleman to-day, he said I gave no definite reply. I can only say that he asked rather an elusive question, because if he had given in that question the information he gave in the House this evening a great deal of time would have been saved and the hon. gentleman would have been saved the inconvenience of receiving an unsatisfactory reply. I said in this reply that if he would furnish us with more information we would cause search to be made and endeavour to pacify him. He has complied with that request, and I will certainly carry out my part of the bargain. With regard to the answer of the Prime Minister it is no part of my functions to deal with that, but I do think the hon. gentleman should realise that he did not give notice. His question was not on the Notice Paper, and the Prime Minister was, therefore, not able to prepare an answer to deal with it. I think I have dealt with all the facts the hon. gentleman has raised, but if not I shall be very happy to do so.

## QUESTIONS.

### Air Raid Reprisals.

MR. PEMBERTON BILLING, in the House of Commons on August 1st, said:—In view of last night's Zeppelin raid over seven counties, may I ask if the Prime Minister will now consider the advisability of reprisals? [Hon. Members: "No!"]

### The R.A.F. and the Ministry of Munitions.

CAPT. BENNETT-GOLDNEY asked the Prime Minister if he would now confer with the Secretary of State for War as to the advisability of placing the Royal Aircraft Factory under the direction of the Minister of Munitions, who is already responsible for the supply of all aircraft weapons and ammunition?

Major Baird (representing the Air Board): The suggestion has been considered. The Royal Aircraft Factory is primarily and mainly an experimental establishment. It is consequently essential that it should be in close touch with and under the direct control of the Director-General of Military Aeronautics at the War Office, who is responsible for the development of military aircraft. It is, therefore, not thought advisable to place the factory under the Ministry of Munitions.

### Aircraft Engines.

MR. BILLING asked the Prime Minister whether he will give instructions for the Report made by the Ministry of

Munitions, and dated June 27th last, upon the labour conditions in connection with the manufacture by a private firm of aircraft engines of Royal Aircraft Factory design to be laid upon the Table of this House?

Major Baird: I regret that the information given in the question is not sufficient to enable me to trace the Report which the hon. member has in mind. If he will supply me with fuller particulars further inquiry will be made.

### Zeppelin Casualties and Compensation.

MR. HOGGE, on August 2nd, asked whether there is any fund to meet the case of a woman who loses her support through casualties to her sons due to Zeppelin bombardment?

Mr. McKinnon Wood: No relief is given from public funds in respect of injuries or losses sustained through air raids since the inauguration of the Government insurance scheme except in so far as property is insured under that scheme. I understand, however, that temporary assistance is given from the National Relief Fund in cases such as those referred to in the question.

Mr. Hogge: I am not asking about the temporary arrangements. Do the Government recognise a distinction between people who lose their lives in this country through attacks by the Germans from Zeppelins and people who lose their lives outside this country? Do they not propose to give some relief to people in that case?

Mr. McKinnon Wood: I cannot commit myself to any statement with regard to the future. I have stated the facts as they stand at present.

## Reports on the R.N.A.S.

MR. BROOKES asked the First Lord of the Admiralty when he proposes to issue any further reports of the work of the Royal Naval Air Services, especially in view of the part its aviators are taking in the military operations?

Dr. Macnamara: I assume that by "reports" my hon. friend has in mind the despatches received from time to time from senior naval officers afloat and ashore, and published by the Admiralty. These reports cover the whole area of operations which are the subject of the despatch, and, as in the case of Admiral Bacon's despatch published last week, include the work of the Royal Naval Air Service. It is the intention as well as the practice of the Admiralty to continue the publication of such despatches. In addition to these formal reports, the Air Board also issue from time to time *communiqués* regarding the day to day work of the Royal Naval Air Service, based upon material supplied to the Air Board by the Admiralty.

## Anti-Aircraft Defences.

CAPT. BENNETT-GOLDNEY, on August 3rd, asked the Prime Minister whether his attention has been drawn to the increased height at which the newest Zeppelins are now able to fly; and if, although it may be undesirable now to let the public or the enemy know whether the effective range of the anti-aircraft guns now in use at home is sufficient to serve any useful purpose against Zeppelins flying at altitudes over 12,000 feet, he can reassure the populations chiefly concerned by a disclosure as to whether we may expect any genuine improvement in the real adequacy and efficiency of our anti-aircraft defences outside the area of London in the near future?

Major Baird: The Prime Minister has asked me to answer this question. As was recently indicated in answer to a question by the hon. member for Mile End, the development of the air defences of the country is proceeding as rapidly as the manufacturing output and the needs of the Navy and of our forces in the field permit. This development applies not to the London area only, but to the country as a whole. I am afraid that I cannot add anything to that statement.

Mr. Lynch: Is there a range-finder in these Eastern towns?

Hon. Members: Do not answer!

Major Baird: I should like notice of that question.

## Co-operation in Anti-Aircraft Work.

MR. SHIRLEY BENN asked the Prime Minister if he will give the names of the officers or persons responsible for co-operation between the air services of the Navy and the Army during an enemy raid over the United Kingdom?

Major Baird (representing the Air Board): It would be undesirable to give the names of the officers or persons who, under the Field-Marshal Commanding-in-Chief Home Forces, on the one hand, as exclusively responsible for Home defence, and the Board of Admiralty on the other, as responsible for the defence of our shores, are engaged on the duties which the hon. member describes. But the hon. member may rest assured that there is effective co-ordination between the two services.

Mr. Benn: If I can show that there was not proper co-ordination between the two services the night before last, will the Government take action to see that in future there is?

Major Baird: Undoubtedly we shall be grateful for any information showing how the arrangements can be improved.

## R.N.A.S. Stations and Zeppelin Raids.

MR. ASHLEY asked the First Lord of the Admiralty whether a certain R.N.A.S. establishment was not informed of the Zeppelin raid on the night of July 28th; whether, in consequence, no machines were sent up though they were ready; whether this was owing to no instructions from the Director of Air Services having been received; whether explosions of bombs were distinctly heard and assumed to be gun practice; and what steps he proposes to take in the matter?

Dr. Macnamara: The attention of the Admiralty was at once called to the omission referred to by the officer in charge of the air station. The Admiralty immediately proceeded to deal with it.

## Air Raids (Insurance).

CAPT. BENNETT-GOLDNEY asked the Prime Minister whether, as apparently an entire fleet of Zeppelins has again been permitted to fly, with one exception, unmolested over several English counties and towns, he will consider the desirability of introducing fresh legislation to permit of a more equitable system of State-aided insurance against risks of injury or loss by enemy air raids; and, as although in contradiction to official pre-war prophecies there appears to be no immediate likelihood of preventing enemy aircraft from inflicting injury and loss upon the non-military populations concerned, if he will also consider the question of State obligation to compensate near relatives of persons who may be killed and injured by Zeppelins or other aircraft?

The Prime Minister: No, Sir, I do not think fresh legislation is called for on this matter. I may point out that in the two latest raids no casualties and no substantial damage were caused.

## Non-Poisonous Dope.

MR. ROWLANDS, on August 7th, asked the Home Secretary whether there has been a large increase of jaundice amongst the persons working with poisonous dope; if he will say what progress has been made with the experiments to produce non-poisonous dope; and is there a probability of it being supplied to the various works at an early date?

The Under-Secretary of State for the Home Department (Mr. Brace): I am pleased to be able to say that not only has there been a considerable decrease recently in the number of cases of jaundice due to dope, but that satisfactory dopes which are free from tetrachlorethane are now available in sufficient quantity, and that the War Office and Admiralty have directed their contractors to use only the approved dopes of this kind. It may be taken, therefore, that the danger from tetrachlorethane poisoning in this class of work has now been removed.

Mr. Rowlands: I take it that that dope is now being circulated to the manufacturers?

Mr. Brace: Certainly!

## Anti-Aircraft Guns and British Aircraft.

CAPT. BENNETT-GOLDNEY asked the Secretary of State for War (1) if his attention has recently been called to another instance in this country of our anti-aircraft guns firing at our own aircraft: whether in an official *communiqué*, which was issued for publication, the instance was described as a flight of enemy aircraft arriving over our shores and successfully driven off by the effective fire of our anti-aircraft guns; if he can say whether this official *communiqué* was withdrawn, and by whom; if a second but entirely contradictory *communiqué* was issued to take its place; if he can give the reasons why this change was considered necessary; if he will inform the House whether the details of this incident, as described in the first *communiqué*, were found to be untrue; if so, whether the real truth was disclosed in the second *communiqué*; if not, if he will explain the reason, and issue a full report of the incident referred to; and (2) whether, when our own aircraft were fired upon on a recent occasion by our anti-aircraft guns, our airmen were in any danger of their lives, and, if so, whether the *communiqué* describing the incident as enemy aircraft successfully driven off by our anti-aircraft guns may be relied upon as true, so far as the efficiency of these guns is concerned, or whether the airmen concerned were never in any danger, in spite of the firing, owing to the ineffective range of the guns?

Major Baird (representing the Air Board): Rare instances have occurred, as in the case referred to, of our anti-aircraft guns firing at our own aircraft, and are, it is to be feared, occasionally to be expected in aerial warfare. They have been adequately dealt with by the competent authorities, and no one but the enemy would gain by their being discussed in public. No such *communiqués* as are referred to were issued for publication, the incident being discovered before official notification could be made.

Mr. Billing: Would the hon. gentleman mind telling me who gives the order for firing the aircraft guns, or is it independent firing?

Major Baird: The officers commanding the battery give the order?

Mr. Billing: Can the hon. gentleman answer the question whether it is independent firing?

Major Baird: I cannot say what orders are given, but the officers commanding the battery give the orders.

Mr. Billing: Will the hon. gentleman find out?

## AIRISMS FROM THE FOUR WINDS.

ZEPP. surprise raids.

INSURE against Zepp. raids.

ZEPP. raid surprises.

INSURE against Zepp. raids.

ZEPP. raiders and surprise packets.

AMONG the Citizens' lectures in connection with the British Association Meeting at Newcastle-on-Tyne from September 5th to 9th, will be one on September 4th by Dr. Dugald Clerk on Internal Combustion Engines.

How imaginative minds have ever turned upon the fascinating idea of air conquest! The latest reference in this connection brought into prominence comes from the Rev. J. P. Bacon Phillips, of Crowhurst Rectory, Sussex, who points out that Sir Horace Walpole, writing in 1785 to his friend, Sir Horace Mann, made the following prophetic prediction: "I expect they will soon have an air fight in the clouds."

HAVING the old Blériot in Mitchell's delightful "Aero" tea-gardens at Hendon for a garden ornament is certainly some brain wave.

It is not only of considerable interest to the general visitors—many of whom, no doubt, tell their friends with pride that they have not only seen aeroplanes in flight, but have *touched* and had tea under a *real* one—but it also has some historical interest. It is the machine poor Lee Temple used to fly.

ELECTRIC control by whistling.

WHISTLING *versus* Wireless.

CONTROL of Aircraft by Whistling. "Wait and listen."

WHISTLING as a "motive control" for aircraft, torpedoes and what not. "Wait and see."

AFTER many months of strenuous work up at Birmingham, where he is connected with the Austin Co., Mr. J. D. North took a short "breather" in town last week. He had very sincere greetings at Hendon amongst his old friends who are still around the 'drome.

THE new Grahame-White works just across the way from the old shops are progressing apace. Their completion will relieve some of the older shops where in the future only the erecting and metal work is to be carried out, the extensions being responsible for all the woodwork, &c. A large quantity of wood-working machinery of the most up-to-date type has already arrived, and is ready for installation in the new premises.

MR. C. H. STEVENS, who, it may be remembered, had a very nasty spill while a pupil at the L. and P. School, resulting in a fractured leg, is out of hospital again. Even better news is that, under the tutorial care of Mr. Sykes, he is actually doing straights on the Martinsyde, although his leg is still in bandages.

THE B.E. was NOT coming to take tea in Mitchell's tea gardens, though we thought it was.

PERHAPS it was only coming to have a look at the old Blériot.

ANYWAY we secured a good picture of it.

CONGRATULATIONS to the British Caudron Co. on the way in which they have carried out what at first would appear an almost hopeless task, building a Renault engine into a Caudron machine. The result, not only bearing no resemblance to a makeshift job, but looking in fact as if the machine might easily have been originally designed for this engine, is a credit to the firm both as regards design and workmanship.

ALREADY most of the special wood-working machinery is in place and running at the works of the Ruffy-Baumann School. Hendon-way contractors who are pressed with other

classes of work, might be well advised to get into touch with the firm if they are in need of spare wings, ailerons, tail planes, &c.

LOOPING the loop in the dark.

SMILES made two at 9.45 on Friday evening. They had to light flares to guide him in landing. He made them outside, over the houses.

SEEMS more sensational than safe.

HE is, we believe, going to try 30 in succession. It may create a record, but is it wanted?

BEATTY's engine goes with a "snap." It snapped off the top of two of his fingers the other day. But "George" continues smiling. Because he has got a good thing.

IT is an offence to photograph anything of a Service nature.

A FRIEND got into serious trouble for photographing the old London to Manchester Farman last year at Hendon.

YET there is a big enlargement of the U.C. 5 in a Cheapside shop, which shows something in the background that ought not to be shown.

WORKERS are encouraged to work hard and take no holidays. Parliament takes eight weeks.

NOT that it matters very much. But Mr. Asquith is to be seen going to the War Office every day.

NOTICE to picture papers. Same old photographs will do.

COBBLERS are notoriously ill shod. And doctors do not take their own medicines. But Members might make munitions.

THERE is nothing new under the sun. Mounted on a flag-staff above one of the hangars at Hendon is a curious, long, sausage-like bag, open at one end, into which the wind blows so that it trails out like a pennant and thus forms an excellent weather-cock. The same sort of "wind bag" was used in Japan and China hundreds of years ago by, amongst others, farmers on their rice plantations.

GOOD idea! The G.-W. "show" pusher biplane—minus engine and tail—is now, apparently, being used to absorb any excess of wind that may be blowing around and interfering with school work. It stands out on the field, securely staked and shackled, with its four-bladed prop merrily ticking off countless r.p.m., and thus absorbing the aforesaid wind.

THOSE who have more work than they can keep pace with may be interested to hear of a private enterprise in the Lancashire district which has a useful assortment of lathes, and would be willing to subcontract for metal or wood parts. We shall be pleased to pass on inquiries.

CHELTENHAM is on the Aeronautical horizon.

THE current (August) list of ball-bearings which Messrs. Laurence Norris and Co. have in stock shows a very wide range. Those who are ever in the market for these fittings should see that they get the list regularly; they have only to drop a post-card to the firm at Imperial Buildings, Kingsway. By the way, the firm are now busy upon a very large contract for war purposes in Italy.

WE wonder what the young man who "was dying for a smoke" thought when the Middlesbrough magistrates fined him 40s. for showing a lighted match in the dark street.

THE new L. and P. premises in Collindale Avenue are gradually getting into shape, and machines are already in course of erection there. After the numerous practical demonstrations of strength and stability given recently, it should be worth while the authorities acquiring a few of these machines for school work.

How about giant flying boats Edgware way?

# Personals

## Casualties.

Lieutenant G. V. RANDALL, attached R.F.C., son of Mr. W. B. Randall, engineer, and secretary to the Waltham Abbey and Cheshunt Gas Co., has been killed in action. He was 19 years of age, and went straight from college after the outbreak of war to the Military College at Camberley.

Lieutenant DOUGLAS BIRCH RICHARDSON, Royal Engineers and R.F.C., who has been killed, was the son of the late Mr. R. Richardson and of Mrs. Dunlop Anderson, 18, Ingestre Road, Oxtou. He went to the Front with the Royal Engineers shortly after the outbreak of war, and was invalided home in the following May. Later he joined the Royal Flying Corps, and returned to active service in March last. Lieutenant Richardson was educated at Gresham College, Holt, Norfolk, and at the Liverpool University, afterwards joining a London firm of engineers.

Second Lieutenant JOHN RAYMOND BOSCAWEN SAVAGE, R.F.C., aged 17, killed on June 18th, was educated at Mr. John's, Winton House, Winchester, and at Oundle. He joined the R.F.C. on his seventeenth birthday, received his pilot's certificate on October 18th last, his wings on February 3rd, and went to the Front in March. He was the last of the direct line of a fighting race—the Savages of the Ards, County Down. His father, Major Arthur Raymond Boscawen Savage, R.F.A., is fighting in the present war; his grandfather, Colonel Henry John Savage, 91st Highlanders, fought in South Africa against both Boers and Kafirs; his great-grandfather, General John Boscawen Savage, R.E., fought in the Peninsular War; and his great-great-grandfather, General Sir John Boscawen Savage, K.C.B., K.H., commanded the Marines in the battle of the Nile. His uncle, Colonel Henry Savage (South Staffordshire), who is now the head of the family, has fought in the Zulu and South African campaigns. Lieutenant Savage was shot by the German airman Immelmann, in Immelmann's last fight.

Captain ARTHUR E. STONE, Royal Field Artillery (killed in action on July 24th), aged 37, was well known in Bristol from his connection with Messrs. George White and Co., in whose office he had been for about 20 years. At the outbreak of the Boer War, in 1899, he volunteered for active service in South Africa, and served with the North Somerset Imperial Yeomanry, and was one of those who formed the guard of honour when Lord Roberts entered Pretoria. Captain Stone will be remembered as Sir George White's private secretary for many years. He possessed exceptional business qualities, and rendered valuable services at the time of the formation of the London United Tramways, and later, when the business of the British and Colonial Aeroplane Co. began to develop, he was selected to control the financial arrangements, and was actively engaged in that capacity up to the time of the outbreak of war. He was an old artilleryman, and had always taken a great interest in the Bristol Artillery Volunteers, in which he served successively as gunner, bombardier, sergeant and later obtained his commission. On the outbreak of war he was one of the most vigorous recruiting officers in the South Midland Royal Field Artillery. Shortly after his brigade left for France he was promoted captain, and he had recently been appointed to the command of a battery. His brigadier-general, in writing to his relatives, speaks of him "as a gallant officer and an excellent battery commander, in whom he placed the greatest confidence."

Second Lieutenant C. I. SANDYS THOMAS, R.F.C. (killed in action on July 20th) was the younger son of Violet and the late Walter Sandys Thomas, of Llanthomas, Breconshire. He was 19 years of age, and was gazetted to the R.F.C. in June, 1916.

Major HERBERT PHILLIPS FLETCHER, F.R.I.B.A., F.S.I., A.M.I.C.E., Middlesex Hussars, attached R.F.C., of Park House, Marden, Kent, died on August 2nd as the result of an accident while on duty, aged 44. He was in partnership with his brother, Mr. Banister F. Fletcher, as an architect, and was a barrister-at-law of the Middle Temple. At the outbreak of the war he was with his regiment, the Middlesex Hussars, and went with it to Egypt. He was then seconded to the French, and did reconnaissance work from Aden and Palestine

on French seaplanes for some months, and was awarded the Croix de Guerre, both Military and Naval, for conspicuous bravery under fire. He was afterwards the officer commanding a British Observers' School at Port Said, and returned to England to take his pilot's certificate for future work with the R.F.C. Major Fletcher was the son of the late Professor Banister Fletcher, F.R.I.B.A., formerly M.P. for N.W. Wilts, and Mrs. Banister Fletcher, of Anglebay, West Hampstead.

Temporary Second Lieutenant JOHN ROBERT GOBERTUS WHITEHEAD, R.F.C., killed in an aeroplane accident on August 3rd, was the eldest son of the late John Whitehead, of Fiume, Hungary, and grandson of Robert Whitehead, of Paddockhurst, Sussex, the inventor of the Whitehead torpedo. He was educated at Eton and Trinity College, Cambridge, and married in April, 1912, Suzanne Béchet de Balan, and leaves one daughter. Being unfit for active service at the outbreak of war, he took up a position at the Whitehead Torpedo Works at Weymouth, which he relinquished as soon as his health permitted him to serve in a more active manner. He was gazetted to the R.F.C. last March.

## Wounded.

Flight-Lieutenant WILLIAM BRYMER, R.F.C., who has been wounded, is the youngest son of Mr. G. Brymer, of Meifod. Lieutenant Brymer obtained a transfer to the Flying Corps from the Royal Garrison Artillery a few months ago.

## Married and to be Married.

The marriage arranged between DONALD, Second Lieutenant R.F.C., fourth son of Mr. S. DAVID COATES, J.P., and Mrs. COATES, Homefield, West Dulwich, and CAROL, youngest daughter of Mr. B. J. GREENWOOD, Shoreham, Kent, took place on August 3rd at the King's Weigh House Chapel, Duke Street, Grosvenor Square.

## Items.

Flight-Lieutenant LAURENCE IRVING, who has a Fokker to his credit, is a son of Mr. H. B. Irving.

Lieutenant G. K. G. KERR, Shropshire Light Infantry, attached R.F.C., who was wounded in an air fight with two Fokkers in France, is now in hospital in London, and doing well. Lieutenant Kerr is the young actor who played with Mr. du Maurier in "Outcasts" at Wyndham's Theatre, and resigned his engagement to join the Army soon after war broke out. He had been in the trenches with the Shropshires for nearly a year, and joined the Flying Corps at Easter. He is the only son of Mr. Frederick Kerr.

Lieutenant JAMES DOUGLAS LATTA, R.F.C., who has been awarded the Military Cross for attacking two observation balloons, which fell in flames, is the younger son of Mr. J. G. Latta, a director of Messrs. G. and J. Weir (Ltd.), Cathcart. He was educated at University College School, London. On the outbreak of war he and his brother, Captain John Latta, also of the R.F.C., joined the London Scottish, but their inclination and mechanical bent drew them eventually to the Royal Flying Corps. He took his pilot's certificate in November, 1915, and has been on active service since. Lieutenant Latta has on several occasions fought Fokkers, his own machine being badly damaged more than once.

We learn from Mr. A. Browning-Paterson, the father of N. A. BROWNING-PATERSON, R.A., attached R.F.C., who is reported missing, that although he is officially described as Lieutenant, he was gazetted Flight-Commander to act as Temporary Captain whilst so employed from July 3rd last, in accordance with the official notification which appeared in "FLIGHT" July 27th.

Captain LIONEL WILMOT BRABAZON REES, R.A. and R.F.C., who has been awarded the Victoria Cross, is a native of Carnarvon. His father, Mr. Charles H. Rees, was for many years colonel of a Volunteer battalion of the Royal Welsh Fusiliers. Last year Captain Rees received the Military Cross for bringing down three German aeroplanes though fighting at great odds.

Captain D. C. SYMINGTON, R.F.C., who had a serious accident recently while flying near Ashford, Kent, when, owing to engine failure, his machine came down and he was severely injured, is in the V.A.D. Hospital, Ashford, Kent, suffering from head injuries and serious concussion.

# AIRCRAFT WORK AT THE FRONT.

## OFFICIAL INFORMATION.

### British.

*General Headquarters (France), August 2nd, 9.54 p.m.*

"During the last 24 hours our artillery, in co-operation with the Royal Flying Corps, has destroyed seven gun emplacements and six ammunition dumps near Grandcourt, and also further gun emplacements in other parts of the Front.

"A few hostile aeroplanes have crossed our lines for a short distance, but were quickly driven back. One was brought down and another damaged.

"The enemy appears anxious to avoid aerial combats."

*General Headquarters, August 3rd, 10.28 p.m.*

"The enemy shelled villages near Arras and Armentières, and dropped bombs on the outskirts of some villages without doing any damage.

"Two enemy aeroplanes were brought down in the northern section of our line, one of which seems to be of a new pattern. Three of our machines were brought down by gun fire."

*General Headquarters, August 4th, 10.3 p.m.*

"A patrol of four of our aeroplanes engaged seven enemy machines in a fight which lasted 45 mins. Three of the enemy's aeroplanes were driven down, and two of ours are missing."

*War Office, August 4th.*

"A report has been received from the General Officer Commanding-in-Chief in Egypt to the effect that on the morning of August 3rd two enemy aeroplanes attacked the shipping in Lake Timsa and the town of Ismailia. A large number of bombs were dropped, but no damage was done on land or water.

"On August 2nd an aerial combat took place between one of our machines and an Aviatik. The Aviatik was driven down, and was wrecked near Salmania."

*General Headquarters, August 5th, 10.18 p.m.*

"The enemy's aircraft showed little enterprise. Eight of their machines scattered when engaged by three of ours."

*General Headquarters, August 6th, 9.50 p.m.*

"The improved weather enabled useful work to be carried out by our artillery in co-operation with aeroplanes, and we destroyed several gun emplacements."

The despatch dated August 5th, 11.15 p.m., from the General Officer Commanding-in-Chief, Egypt, describing the successful repulse of the Turkish attack near Romani, concludes:—

"The work done by the Royal Flying Corps was excellent."

### French.

*Paris, August 1st. Afternoon.*

"Adjutant Non-commissioned Officer Lenoir brought down an enemy aeroplane—his fifth—which fell in its own lines north of Verdun. Another aeroplane was attacked by one of our machines west of Etain and was smashed on the ground."

*Paris, August 2nd. Afternoon.*

"On the Somme front our chaser planes were very active yesterday. Thirty-three combats were fought with the enemy over the enemy's lines. One German machine, which was attacked by two Nieuports, was seen to fall in flames, and 14 other German machines, which were seriously damaged, were obliged to come down or to drop headlong into their own lines."

*Paris, August 3rd. Afternoon.*

"On the Somme front Sergt. Chainat fought two air battles yesterday, and on each occasion brought down his adversary. These fresh successes bring the number of German machines brought down by this pilot to eight. Another German machine was attacked at close quarters by one of our machines, and fell in a damaged condition near Chauny."

*Paris, August 3rd. Evening.*

"During the night of August 2nd-3rd our bombardment aeroplanes dropped projectiles on the stations of Ham and Noyon. This morning an enemy aeroplane dropped a bomb on Nancy. There were no victims, and no damage was done. Pont à Mousson was also bombed, but to no effect."

*Paris, August 4th. Afternoon.*

"Last night one of our bombarding squadrons dropped 80 bombs of heavy calibre on the railway station of Noyon

and on a munitions factory. Fifty bombs were dropped by another air squadron against the enemy's railway stations and bivouacs in the region of the Somme."

*Paris, August 4th. Evening.*

"A German captive balloon, hit by our fire, was destroyed near Ennemain, south of Péronne.

"During the night of August 3rd-4th our air squadrons carried out several bombardments in the region of Verdun.

"Thirty-two shells were dropped on the station of Stenay and 83 on the stations of Montmedy and Sedan, and on the bivouacs in the region of Danvillers."

*Paris, August 5th. Afternoon.*

"On the Somme front our chaser aeroplanes fought 17 battles, in the course of which two enemy machines were badly hit and came precipitately down in their own lines. Two other German aeroplanes were brought down in the region of Verdun, one falling near Avocourt and the other near Moranville."

*Paris, August 6th. Afternoon.*

"Last night our air squadrons dropped 40 bombs on the region of Comblès, 84 on the station of Noyon, 30 on the stations of Stenay and Sedan, 40 on the station of Conflans, 60 on the station and railway works of Metz-Sablons, and 40 on the military establishments of Rombach (north of Metz). Several of these squadrons made two consecutive flights, and one of them no less than seven during the same night.

"On the Somme front two German captive balloons were set on fire by our aircraft. One German aeroplane dropped four bombs on Baccarat. There was no loss of human life, and the material damage was insignificant."

*Paris, August 6th. Evening.*

"This morning one of our pilots brought down successively two enemy machines in the region of Verdun. One of them fell in the French lines and the other between the trenches of the Germans and our own. Also this morning, after a fight with one of our aeroplanes, another German machine was forced to land in our lines at Moyenneville, north of Estrees. The two enemy aviators were captured. The machine, which is of a new pattern, is intact."

*Paris, August 7th. Afternoon.*

"On the Somme front our flying corps fought a number of battles yesterday. Three German aeroplanes were brought down, one near Roiglise (south-east of Roye), a second near Omiecourt (south-east of Chaulnes), and the third north of Nesle. Three other enemy machines were badly hit and forced to land in their own lines. Finally, two German captive balloons were destroyed by our aeroplanes. Last night our squadrons carried out the following bombardments: 20 bombs were dropped on the Metz-Sablons railway station, 30 on Thionville railway station, 25 on the factories at Rombach (north of Metz), and 12 on bivouacs near Etain."

### Russian.

*Petrograd, August 1st. Afternoon.*

"In the communiqué of July 25th it was stated by error that the aviators Staff Capt. Beridze and Lieut. Rtichtcheff perished as heroes after their machine was bombarded by the enemy's artillery. The correct version is that one of our Voisin aeroplanes was attacked by a Fokker, and after a duel caught fire, and fell into the enemy's front line."

*Petrograd, August 2nd. Afternoon.*

"An enemy aeroplane dropped bombs near Ussitchni, on the road from Vladimir-Volynsk to Lutsk, on a convoy of wounded, killing or wounding afresh 20 men. The aeroplanes also dropped bombs on a divisional hospital, killing one wounded soldier and eight attendants."

*Petrograd, August 3rd. Evening.*

"In the Vorobievka region, east of Czerny, nine enemy aeroplanes flew over our encampments. During the fighting south of the Dniester, in the direction of Stanislovoff, the regimental chaplain, Kastorski, was wounded."

*Petrograd, August 7th. Afternoon.*

"An enemy air squadron of seven aeroplanes bombarded several places in the region east of Stokhod, causing only insignificant damage."

### Italian.

*Rome, August 2nd.*

"As enemy aircraft last Thursday had attacked Italian open towns on the Lower Adriatic, without any military

object, one of our strong Caproni squadrons on Tuesday bombarded the Whitehead torpedo and submarine works, 2 miles west of Fiume. In spite of the heavy fire of the anti-aircraft artillery and the attacks of enemy aeroplanes, our airmen succeeded in dropping four tons of high explosive, which did much damage to the works and set them on fire.

"During the air fight one enemy aeroplane was brought down above Muggia. One of our Caproni was observed landing near Volosca, but the others returned safely.

"Nine aeroplanes this morning very effectively bombarded Durazzo, dropping many bombs on the landing stages, barracks and aviation station, which was repeatedly hit. All our machines returned safely except one, which was forced to land in enemy territory, as it was damaged."

*Rome, August 5th.*

"An enemy aeroplane dropped bombs on the railway station of Bassano, hitting some trucks. The casualties were one killed and two wounded.

"A squadron of our Voisin aeroplanes dropped 35 bombs on the railway station of Nabresina. Good results were observed."

*Rome, August 7th.*

"A squadron of our Caproni aeroplanes bombarded the railway junction of Opicina under unfavourable atmospheric conditions, driving back hostile aeroplanes, one of which was brought down. One of our aeroplanes failed to return.

"On the night of August 5th and during the day of August 6th some of our torpedo-boats made demonstrations against the enemy coast between Duino and Miramar, near Trieste, during which they were attacked by enemy aeroplanes without suffering any damage."

## Belgian.

*Havre, August 1st.*

"In a communiqué summarising the operations of the Belgian troops in East Africa from July 3rd to 20th, it is stated: 'During the same period a squadron of hydroplanes at Lake Tanganika showed great activity. The defences of Port Kigoma and the enemy's ships in the harbour were bombarded nearly every day.'

## German.

*Berlin, August 1st.*

"Unimportant military damage was caused by the dropping of bombs on Wervicq, Belgian Comines, and other places behind our front. Numerous victims were caused among the civilian population. An enemy aeroplane was brought down yesterday, and another on July 30th, by our anti-aircraft guns within our lines in the Somme region. Another aeroplane was brought down yesterday in aerial battle near Lihons."

*Berlin, August 2nd.*

"The enemy aeroplane attacks against the villages behind the northern part of our front were repeated. There is hardly any question of military damage; the losses among the population increase. According to supplementary reports, Arlon, in Belgium, was also attacked in the night of July 31st to August 1st. The Jesuit Convent and the church were struck. Three enemy aeroplanes were brought down by our anti-aircraft guns, viz., north of Arras, south-west of Bapaume, and near Pozières, whilst one was shot down in aerial battle near Monthois."

*Berlin, August 3rd.*

"Russian aeroplanes were shot down near Rozyszcz and to the east of Torczyn."

"Several German seaplanes early in the morning of August 2nd again attacked the Russian aeroplane station of Arensburg (Olsel Island, Gulf of Riga), and obtained several hits on the establishments there. Russian battle-aeroplanes ascended to repulse the attack, but were driven off. Our seaplanes returned undamaged."

*Berlin, August 4th.*

"In an air fight near Lens, Lieut. Mulzer brought down his ninth aeroplane, and Lieut. Frankyl, the day before

yesterday, near Beaumetz, his sixth. Our aviators also shot down an enemy biplane yesterday, near Peronne. Two others were brought down south-west of Arras and near Lihons.

"Our anti-aircraft fire brought down two aeroplanes, one near Berles au Bois, south-west of Arras, and one near Namur. The latter belonged to a squadron which attacked Namur, but caused only small material damage."

*Berlin, August 5th.*

"In the Somme sector two enemy aeroplanes were shot down in air fighting."

*Berlin, August 6th.*

"Yesterday morning near the coast of Flanders, an enemy battle-aeroplane, after a long chase, was forced to fight by one of our seaplanes, and was brought down and completely destroyed.

"Our pilot, Naval-Lieut. Boemisch, thus destroyed his fourth enemy machine. A few days ago he forced another enemy aviator, by machine-gun fire, to land close behind the enemy's lines."

*Berlin, August 7th.*

"Repeated attacks of enemy airmen on the terrain behind our front were without any special effect. The repeated bombing of Metz caused some damage.

"Our air squadrons dropped numerous bombs on concentrations of troops on and north of the railway line between Kovel and Sarny. The bombs were seen to take effect."

## Austrian.

*Vienna, August 3rd.*

"A squadron of our torpedo-boats on Wednesday morning bombarded military establishments at Molfetta. An airship shed was wrecked, one factory was set on fire, and another damaged.

"During the morning hours of the same day five enemy aeroplanes dropped bombs on Durazzo without causing any damage. They were pursued by our seaplanes. One enemy aeroplane was brought down some miles south of Durazzo by one of our seaplanes and captured in an only slightly damaged condition. The two occupants of the machine fled. Later one of them, an officer, was captured by our troops."

*Vienna, August 5th.*

"Our airmen successfully bombarded Bassano."

*Vienna, August 7th.*

"During yesterday afternoon an enemy airship coming from the south-west, and flying at a great height towards the Isle of Lissa, fell in the sea in flames.

"An Austrian torpedo flotilla was only able to save the debris of the balloon's envelope. None of the crew could be found."

## Turkish.

*Constantinople, August 2nd.*

"North-west of Katia our aviators dropped bombs and successfully attacked with machine guns the English positions and camps near Mahemdia on the coast."

*Constantinople, August 3rd.*

"North of Katia an enemy aeroplane was driven down, damaged by our fire on the coast. The occupants of the machine fled after setting the aeroplane on fire. One of our patrols which had pursued the damaged machine drove off some enemy cavalry which had come up, and captured the aeroplane's machine gun and other material."

*Constantinople, August 4th.*

"East of Katia one of our aeroplanes, by dropping bombs, forced the warship to cease fire and withdraw."

*Constantinople, August 5th.*

"An enemy aeroplane which appeared over Birhassana, about 27 kilometres south-east of Ibne, was driven off by our fire. Three enemy aviators who threw bombs unsuccessfully on our troops near Katia were driven off by the attack of our aeroplanes, which ascended to engage them, and the fire of our anti-aircraft guns."

## From Other Sources.

The *Times* correspondent, writing from the British Headquarters on July 20th, says:—

"At the same time our airmen are doing the enemy a great deal of damage. I understand that on one part of the front they have been dropping bombs, whenever the weather permits, behind the German lines, on his communications, on depôts and railway lines, on marching troops, or wherever they will cause most annoyance.

"One hears extraordinary stories of the audacity with which our aeroplanes sweep down close to the ground and use their machine-guns on bodies of troops below. How long it will last one cannot say, but for weeks past now, since our men have had a fair chance in comparison with the enemy, we have so completely held the upper hand in the air that the enemy's air service, whether for observation or offence, has been practically valueless to him."

The *Daily Telegraph* Paris correspondent, writing on Sunday, says:—

"No more heroic deed has been recorded in this war than that of Sergeant-Major Marquart de Terline, who gave his life to bring down an enemy aeroplane. His machine gun jammed soon after an air fight began, whereupon he deliberately drove straight at his adversary, rammed his machine, and both aeroplanes dropped to earth with their passengers dead. Terline, who was 24, and had formerly served in the Cuirassiers, had been twice mentioned in Despatches, and had received the Military Cross for bringing down a Fokker. He has once or twice said, 'If ever I cannot shoot, I shall just go straight for the Boche aeroplane.'

"The fight began at 4 a.m. on Thursday, when an Albatros, driven by a well-known German aviator, a giant with red hair, nicknamed by the French Arminius, appeared over the lines, making for Chalons-sur-Marne. In a few moments three French flying men were in the air after him in wild pursuit at 80 m.p.h. In spite of an incessant fusillade the enemy was apparently unhit, and he was nearing his own lines, while munitions were giving out. The three Frenchmen resolved on desperate tactics. They endeavoured to surround the enemy, and, should firing fail, to bring him down in sheer collision. Two of the Frenchmen accidentally ran into each other, and both machines fell, the aviators eventually landing safe and sound.

"Terline was left alone, still firing his machine gun, with the Albatros, mounted by two men, a pilot and an observer. Suddenly his gun jammed. The enemy was some 60 ft. below him, nearing his own lines. Arminius was still firing his machine gun, and also shot with a carbine. Suddenly Terline came straight down and drove his machine into the rudder of the Albatros. Both aeroplanes fell instantly in collision, stuck to one another for some seconds, then parted in mid-air, and crashed to the ground just behind the French lines at 100 yards from one another. Sergeant-Major de Terline and his two adversaries had, of course, been killed almost instantly. Terline, whose heroic self-sacrifice had been watched through glasses by several officers, had been true to his word."

The *Times* correspondent at the British Headquarters writing on July 29th, says:—

"An extremely gallant feat was accomplished recently by one of our airmen, who fell in with a squadron of 10 enemy machines, attacked them single-handed, and forced three to the ground. He was wounded in the fight with his first machine.

"The whole thing was witnessed from the ground, and he was seen after the first combat to lose control of his aeroplane, and it looked as if he would have to come down. He regained control, however, and returned to the attack, and then drove down his other two victims. It was altogether one of the finest actions of this war, and the public will doubtless hear more of it.

"In the last two days the visibility has much improved, and there is, and will be, a great increase in aerial activity.

"I have explained in former messages why for some time past the conditions have been all against our airmen. Under protection of the bad visibility which has prevailed there is every likelihood that the enemy's flyers will have recovered something of their *moral*, and we must probably expect them to be attempting exploits which for some time past they have not dared. If so, we may be sure that their recovery will be short-lived, and we shall promptly re-establish our supremacy.

"In the bad weather the enemy airmen have had a chance to take a breath. Nobody who knows doubts that we shall soon knock it out of them again."

Writing to the *Daily Mail* from the British Headquarters on Sunday, Mr. W. Beach Thomas says:—

"At the same time German aeroplanes—which had almost vanished from the British side of the line—flew over and dropped some bombs. Many people, myself included, saw a German aeroplane for the first time since July 1st. In all respects the enemy is struggling, with labour and high cost, to recover a portion of the initiative which he has lost. The air pilots begin to be more active and courageous and to drop more bombs. The heavy and long-distance artillery is extending its range and volume. The supply of the small 'egg bombs' is large."

The *Daily Telegraph* correspondent in Paris, writing on July 26th, says:—

"Second Lieutenant Nungesser is officially announced to have brought down his tenth enemy aeroplane, but his

official record does not at all represent his real record. He has, in fact, brought down 16 enemy machines, but six of these fell within their own lines, and, therefore, are not counted by the French command. Moreover, he has at least two enemy 'sausages' to his credit. Nungesser, owing to wounds, was finally invalided at the beginning of this year, but refused to be invalided, refused his three months' convalescence leave, re-enlisted at once, and started flying again in March."

The *Times* special correspondent at the British Headquarters, writing on July 25th, relative to the advance through Pozières, says:—

"In getting up his new guns he has been favoured by the bad visibility of the air. It is seven days since any rain fell, which, of course, has been advantageous to our troop movements. At the same time the atmosphere has been continuously thick and hazy, and the denseness is increased by the dust from the dry ground and the battle smoke. Aeroplane observation has been very difficult, for which the Germans have cause to be thankful. That is a condition which operates against us only, for the enemy has practically no observation from the air now under any conditions.

"It is true that in the last few days a few of his aeroplanes have ventured in the thick air on hurried incursions across the lines, but they have amounted to nothing. It remains as true as it was when this battle began that we have complete mastery in the air. Not only do we rule the skies above the lines, but we hold the enemy terrorised far into his own territory. Over his aerodromes our machines keep constant guard, so that his airmen can hardly rise, except under cover of the dark or in very thick weather.

"The French are following the same tactics. Some of our own airmen recently saw a beautiful sight when a flock of seven Fokkers tried to rise from the aerodrome at Cambrai. An equal number of French aeroplanes was waiting overhead, and, as the enemy machines came up, they swept down from the clouds, and the enemy scattered like a covey of partridges stooped at by a falcon, and all came fluttering to earth, in all parts of the horizon, wherever they could find landing.

"Whether with our own latest or with French machines, none of our men has now the least fear of a Fokker or anything else which the German can send up. But this is no guarantee that he will not soon have—perhaps is already building—something which will be more formidable. No effort must be spared to keep improving.

"Our flying men are fine beyond words. Given an equal chance they will always hold the mastery which they have won. And the air supremacy is a thing of simply incalculable value in this artillery war, wherein observation counts for so much."

In a vivid story describing some impressions of the battles of the Somme, Lord Northcliffe, in the *Times* of August 7th, says:—

"From north to south is an irregular chain of watchful observation balloons. High and glittering in the sunshine are planes, directed as often as not by boys who in happier times would be in the boats or the playing fields. Their heroism during the last few weeks has never been equalled, except in this war."

"The war-plane of 1916 flies upwards and away with the speed and grace of a dragon fly. She has been made perfect and beautiful for her flight by skilled expert mechanics. When she returns after, let us hope, her conquest, the boys who have escorted her in the air (one of these I met was at school last year) hand her over again to those attendants to see if she has any rent in her gown or other mishap which may be speedily mended. When, therefore, you see an aeroplane you must realise that each machine has its staff. Speed and efficiency being prime essentials of victory, her caretakers must be skilled and young. As for her supplies, there must be at hand a great quantity of spare parts ready to be applied instantaneously, and there must be men, in case of need, who can either alter or even make such parts. There must be those who understand her camera and its repair, her wireless and its working, men who have already learnt the mysteries of the newest bombs, rockets and machine guns. I take the aeroplane as an instance because of its prominence in the public eye.

"What applies to an aeroplane applies in other degrees to every kind of gun, to every form of motor or horse transport, ambulances, field kitchens, filters, and to a thousand articles which at first sight do not necessarily seem to be part of war making."

A little pen-picture of the work of the kite-balloon at the Front was contained in the despatch of the *Morning Post* special correspondent with the British Army. Writing on August 3rd, he says:—

"Yesterday and to-day our artillery has been pounding away at the enemy with extraordinarily results. We do not know as yet all that has been accomplished, but the trustworthy reports of our observers—whose work has been facilitated by a clearer atmosphere than we have had for some time past—make it clear that we have 'knocked out' several important Boche positions, and have reduced others to a state of temporary ineptitude. For a good many days now the Germans, having brought up portentous reinforcements of heavy guns, have been searching vainly for our artillery emplacements. They have 'chucked about' a great deal of 'heavy stuff'—mostly at random, and the effect has been almost nil. This is due to the utter lack of success which has attended their aerial observations. Everybody is asking what has gone wrong with the air service of the enemy. One does not wish to be unduly optimistic, but whatever the reason may be the Boche airmen have suddenly developed a caution and a timidity which have come with the shock of a surprise to our own airmen, who are constantly flying over the lines of the enemy and are really puzzled to account for his lack of activity. I only wish those people who speak and write in the language of a foolish and unworthy pessimism about the 'command of the air' could see, as I do almost daily, our flying men careering across territory held by the enemy while hardly ever does a Boche 'plane dare show its nose across its own protected frontiers.

"The aeroplane acts as the eyes of our artillery, and our artillerists recognise the obligations they owe to it. Another department also of our air service is deserving of the highest praise—the kite-balloon section. The kite-balloon, or 'sausage,' has a fixed post of observation in the air. In the Army it is known as 'Rupert.' Why 'Rupert' I do not know, any more than anybody knows why the anti-aircraft gun is called 'Archibald.' I have visited 'Rupert's Retreat' when he has been at home to his friends. He is rather an uncouth-looking object. He really does resemble a sausage in the air, with a caudal appendage, the utility of which may not be disclosed. But he has wonderful eyes in his head, and from his fixed position he is able to note the effects of long-range artillery fire in a fashion which is extremely useful to the men at the end of our guns. Precisely how 'Rupert' does his work I may not disclose. But he is a wonderful creation. It is only within the past six months that he has been adopted definitely as a trustworthy adjunct of our military service. I have counted within the purview of vision as many as 26 of our 'Ruperts' in the air at one time. Our French Allies, too, have recognised his worth and use him freely. The Germans, likewise, have sausage balloons, but we have succeeded in 'strafing' a very large number of them, whereas ours are so well protected against enemy devices that the percentage of accidents is infinitesimal. All honour to 'Rupert' and the brave men who daily ascend with him into the skies. He is a terrible thorn in the flesh of the enemy."

Mr. Stanley Washburn, the *Times* Special Correspondent with the Russian Forces, writing from the Stokhod Front on August 3rd, says:—

"The German flyers have during the past week begun a campaign which can only be characterised as pure murder. Every day there are bomb raids here. The machines fly as low as possible, pouring machine gun fire into the panic-stricken populace, which bears the brunt of all these attacks. To-day's toll was 11 killed and 40 wounded. The latest form of bomb employed is one filled with fragments of broken glass, one of which killed a girl not far from my house. One bomb fell nearer still, a fragment striking the roof of my quarters. The hospitals here are also being bombed daily, the English hospital having suffered already twice from this atrocious practice. Many wounded have been killed by the bombs.

"A still more atrocious practice has lately been adopted. The airmen sweep down and drop bombs on the high roads behind the lines. Two days ago a German airman on the stretch of road between here and Lutsk, which is open country, discovering an unprotected column of ambulances plodding through the dust, planed down just above it and opened fire with a machine gun, killing 20 wounded men within. These carts with their canvas covers are unmistakable, and this act can only be characterised as wanton and brutal murder.

"It is unbelievable that the German higher authorities approve of these acts of aerial piracy. Certainly such atrocious deeds could be formally presented to the attention of the German Government through neutral channels. These daily scenes in the hospitals of little children with bandaged heads and dying women tend only to increase the moral of the Russians, while they have not the slightest military value."

The *Daily Telegraph* correspondent in Petrograd, writing on August 6th, says:—

"Two moving episodes of an intimate nature are reported from the Front. One is the death of the aviator Edward Pulpe, who, though born in Russia, and of Lett extraction, began his career in the French Army, and was only detailed to this front comparatively recently. While scouting on the Styr he was attacked by a Fokker, which was soon joined by two more apparatus of the same type. For an hour the unequal combat was watched with breathless excitement from the Russian lines, where the occasional rattle of flyers and machine guns was distinctly audible.

"At last it appeared that Pulpe's machine had received a vital injury, for it descended in a spiral from a height of 2,000 to 1,000 yards, and then fell like a stone to the ground.

"The aviator was still breathing when picked up, but expired shortly afterwards, without regaining consciousness."

Mr. W. Beach Thomas, the *Daily Mail* correspondent with the British Army, writing on August 5th, gives the following snap of the quick work of the R.F.C. photographers:—

"Nor is this the full tale of the efforts of the co-operation of different arms. Before noon to-day the airmen had taken and delivered to headquarters photographs of the captured territory; and these were already proving of service to the infantry in possession. So a complete circle of combined effort may be drawn. The artillery made possible the infantry attack. The airmen lent to the artillery the eyes that made their work effective; and, finally, the association of airmen and infantry accelerated the work of infantry organisation.

"When the airmen went out this morning at the favourite hour of all flying men in peace or war—the hour before dawn—they could see the ruins of Martinpuich (where our guns the other day lit a great fire) and our shells bursting here and there and everywhere over the hill and down the wide glacis which leads to the valley by Bapaume, and they knew that for the first time the infantry as well as they themselves had some direct glimpse of the same attractive scene. They seldom, if ever, had a greater compliment to their own enterprise."

The difficulties of air work in Egypt are well set forth in the following despatch from Mr. W. T. Massey to the *Daily Telegraph*. Writing from the General Headquarters in Egypt on July 18th, Mr. Massey says:—

"The brilliant work of a flight of the Royal Flying Corps during the operations in Darfur will rank as one of the finest efforts of our Army airmen in the war. The flight had some serious moments, when transport threatened to fail them, but energy, resource and the determination to succeed triumphed over all troubles, and the achievements are worthy of the page they will receive in the history of military aviation. The airmen had to move south at very short notice, travel by sea, rail and desert track for 2,000 miles before they could reach the barren spot from which they were to operate, to face all the difficulties of flying under tropical conditions with an equipment not designed to meet such special circumstances, and to fly in a country absolutely unknown to them and where maps were of little use. They were of infinite service to Col. Kelly from a military point of view, and one may hazard a prophecy that their exploits in the air helped to make Ali Dinar's people realise the Sultan's game was up, for though the natives were not astonished to see machines in the air, they were surprised beyond expression when men alighted from them. One who found speech was heard to say, 'The Government was always great, but now it is greater than ever.'

"In Darfur the weather breaks about May 25th with unfailing regularity, so that when it was decided on March 29th that a flight of the Royal Flying Corps should be detached from the Egyptian Expeditionary Force to take part in the operations there was very little time for preparation. On March 31st two officers left Suez for Port Soudan and Khartoum, and they were followed on April 7th by an advance party of a few officers and men with petrol, oil, bombs,

transport tent sheds, and absolutely essential stores, and on the 20th the main body commenced the ten day's journey to Rahad, the railhead station south of Khartoum. The transport difficulties proved greater than anticipated. Stores and machines had to be got forward to Gebel-el-Hilla and Abiad Wells, 300 miles west of the railway, and the track to Nahud, half way, was quite unreliable, and lorries often stuck fast in the sand for days. The lorries had to take their own supplies of petrol and water, thus reducing the loads.

"Intense heat caused aviation petrol tins to burst, and evaporation was so great that a consignment of seven cases supposed to hold 56 gallons contained only 37 gallons. Plants with very sharp, hard thorns grew on the track and punctured tyres, and with the thermometer registering 120° in the shade it was desperately hard work to get up stores to be ready for the commencement of aerial flights from Hilla by May 12th. Most of the transport was done with camels—for at least 150 miles it was impossible to carry stores except in camel packs—and as the tents for machines each required 28 camels to carry them, the labour involved in transport may be imagined.

"An officer travelling in advance had selected spots for landing places, and had put down directional arrows of long strips of white cloth. These began to disappear, and the new robes of sheikhs' wives was evidence of the uses to which the pilfered material had been put. It was extremely difficult to find one's way in this country. In the mornings, when the camel transport trains were on the move, the airmen could pick up the exact line, but the camels were rested from 9 a.m. till 4 o'clock, and flying was dangerous after midday because of heavy storms. You get no warning of the approach of a 'haboob'.

"Extraordinary exertions were made to push forward the stores. Major Groves controlled matters at railhead, and every officer and man in the flight did more than a full share to see that everything needful was in properly-placed depôts on the line of route. A shed was built at Nahud for the two reserve machines, and the tents were ready at Hilla when two B.E.2c's landed in the aerodrome at dawn on May 11th. A reconnaissance had been arranged for May 12th, and a machine flew over El Fasher on that morning. The Royal Flying Corps had kept to the time-table despite the unexpected difficulties of the road, and all that was asked of the flight was done to the end.

"Much the longest flight in Africa stands to the credit of this flight of the Royal Flying Corps. On May 17th Col. Kelly's force was approaching Bir Meleit, an oasis 37 miles north of El Fasher, which was believed to be occupied by the enemy. It was important to know their strength, and also to ascertain whether there was water in the wells there. At dawn an airman started from Hilla (116 miles away) to reconnoitre. On his first journey he could not find Meleit, and he returned to the aerodrome at Hilla for further information. At 8.45 a.m. he again set out, and was successful. In flying over the place he was fired at, and a bullet hit the propeller. Bombs were dropped, and the airman came down low and opened machine-gun fire on the enemy, 500 of whom bolted and left Meleit open to our troops. On his return journey the airman dropped a message to Col. Kelly, telling him that there was water in the wells and that the enemy had fled. The airman reached Hilla at 2.15 p.m., having been flying for 8 hours out of a period of 9 hours, a feat which the Sirdar warmly praised in a speech of thanks to the Royal Flying Corps for their magnificent work.

"On some succeeding days there were further reconnaissances. Care was taken to measure the aeroplanes to see that they were standing the strain of unusual weather conditions, and the result was satisfactory. On May 23rd, as Col. Kelly was approaching El Fasher, Lieut. J. C. Slessor flew over the long stretch of country between the aerodrome and Ali Dinar's capital, and arrived at the moment when the force had gained a victory over the Sultan's troops. Lieut. Slessor saw 2,000 enemy cavalry drawn up in reserve outside the town, and attacked them with bombs and machine-gun fire. The horsemen scattered in all directions and took no further part in the fighting. When he began bombing the cavalry the Lieutenant saw a group surrounding a banner. He aimed a bomb at the party, and later information points to the Sultan having a narrow escape, two of his servants and his own camel being killed by the bomb.

"While attacking the cavalry Lieut. Slessor received a bullet wound in the thigh, and he had to steer with his hand instead of his foot on his way back to Hilla, his difficulties

being greatly increased by a storm which broke suddenly. He brought the first news of the victory, and it was transmitted to the Sirdar from the aerodrome."

The *Times* correspondent at British Headquarters, writing on July 31st, thus describes the work of the bombers:—

"In the heat and haze which have been so prevalent of late, aerial observation for artillery purposes is very difficult, and to that extent the conditions are in favour of the enemy, who is the inferior power in the air. When he loses his observation he loses much less than we. However bad the air may be for certain purposes, nothing, since this battle began, has stopped our constant daily bombing from aeroplanes of important military points behind the enemy's lines. Many prisoners have spoken with terror of the damage which our aeroplanes have done, and declared that the bombing has been worse than artillery fire.

"It is immensely interesting to watch a squadron starting off on some distant and daring enterprise, but vastly more thrilling to see them come home. It is during the time that his men are away that the commanding officer has the most anxious time that he has to go through. I have shared, in minor degree, the anxiety of such a vigil.

"They had gone, very cheerfully and with almost no words said, on a long and dangerous flight over the enemy's territory. A large flight of our fighting machines, soaring in the sunlight, into and beyond the clouds, is a sight more beautiful than any flock of birds that fly. They had all disappeared into the distant blue, and nothing then remained but to wait. Would they attain their end? And if they did, how many would come back? It is nervous work waiting, even for an accidental outsider. For the commander who has sent them on their errand it is trying to a degree.

"At last they came—one singly, and, after some minutes, another and then another and another, till at last the tale was complete. They had all come home safely, and they had done what they had been sent to do—as the way of our airmen is—down to the last detail.

"Arrived at their destination, they had dropped down from the dizzy heights at which, on such an errand, they fly, and then methodically one after another, they had done their work. From that height an airman's trained eye can watch the course of his bomb in clear weather until it actually strikes the ground. So they had seen them fall; they had seen them strike the railway trucks and station and the depôt where the stores were kept. Each had had his object and each had found it. They had seen the bombs—explosive and incendiary—strike true, they had seen the wreckage and the smoke and the flames, and they knew that their work had been thorough. And only the last had been fired at.

"At less than 2,500 ft. an anti-aircraft gun should have little trouble in finding an aeroplane. Perhaps the men with the 'Archies' were having their after-luncheon nap. Probably they had had beer to drink—and the day was very hot. So all our machines but one had dropped their bombs—not hurriedly but with precision—before the enemy's guns spoke—and then they spoke harmlessly.

"'Oh, yes; they came pretty near,' the pilot of the last machine said casually, 'nothing unusual.' For these men to have the shells exploding 'pretty near' about their ears is a daily incident. They merely report it, saying that they were fired at by a gun at such-and-such a place much as if they said that they had lunched there.

"I have already said, in a former message, that one result of this thick weather will probably be a recrudescence of enterprise on the part of the enemy airmen. Behind the protection of the haze they will have had time to get their courage up. And we shall beat them down again. So long as you at home make sure that our Flying Corps gets regularly the men and material that it needs you need have no misgiving about the future in the air.

"The enemy may splutter and let off fireworks now and again, but in the long-run we hold him here, and the French hold him no less decisively farther down the line. He may and will make dashes for liberty now and again, but he will never, I believe, get the upper hand of us again."

In a despatch, describing a flight over the British lines, the *Times* Special Correspondent at the British Headquarters, writing on July 28th, says:—

"We did not, of course, cross the lines, nor even go near enough to tempt the possible fire of an enemy gun. . . .

"Straight below one as one flew over the nearer outlying trenches on our side, they were strangely distinct. . . .

"Beyond was the terrible belt of smoke. Smoke, too, rose here and there on this side of the belt, and from where we were, sharpnel and high explosive shell alike seemed to be bursting on the ground. No sound of gun-fire or shell explosion reached one through the noise of one's own propeller and the whistle of the wind. Like the farmland and the villages, it was all part of a painted picture.

"One thing which the experience made me understand, as I had not understood before, was the amazing value of aeroplane observation. Proofs of it one has in many stories which one hears, and in the beautiful photographs with which our Royal Flying Corps keeps the Army supplied. Those photographs are wonderful in their detail, but still more wonderful is the clearness with which each detail down below stands out before the eyes.

"Another thing which it taught me also was the joy of flight. It was, my pilot told me, a bumpy day, and I was glad. I knew that we bumped, certainly, and found that there are two kinds of bumps. In one you sensibly hit something hard, as a boat is buffeted by a sea. In the other you find nothing beneath you; but you drop, the bottom having fallen out of things, as when a lift begins unexpectedly to descend. I became familiar with both varieties of bumps and disliked them equally, and should have been disappointed if the expert had told me that it had been smooth.

"They had told me that I should hate it when we banked, but they were wrong. It was merely strange and infinitely

novel and delightful, while as for the landing, which they said was worst of all, there can be no more gloriously exhilarating thing in life than that steep glide, when the propeller drops its note to a gentle purring, and the machine sweeps, like some fairy motor-car, dropping, with the clutch out, on frictionless bearings down the face of a hill of oil, from cloud-level to tree-level, to grass-level, there to land, with hardly a jar, and bound again and rush across the open space of turf, swinging round in a gentle curve until she stops with her nose to her own hangar like a well-handled horse pulling up at his own doorstep.

"Another thing which I learned was the great difficulty of seeing another machine in the air. I saw none. But when I landed there were three within sight from the ground against the sky.

"My trip was only a trivial incident. But it has increased tenfold my already great admiration of the men who handle these machines as my pilot handled mine, who take them up to three and four times the height to which I went and do not stay on this side of that dreadful line of desolation, but pierce it and keep patrolling, day by day, those upper regions over the enemy's country, to find him when he rises there above the clouds and beat him down to earth again.

"War nowadays, in most of its aspects, is a terrible, sordid thing. But this fighting of the airmen is more than the warfare of any ancient heroes, and comes nearer to the battling of the old gods than anything that men have done or dreamed."

## QUARTER-MASTER TERLINE'S HEROIC SACRIFICE.

WE have already recorded the heroic deed in which Quarter-Master Marquart de Terline, of the French Air Service, when his machine-gun ammunition gave out, deliberately rammed the German Albatros machine which he and two brother pilots were chasing, rather than allow his quarry to regain the enemy's lines. The story has been carried a step further by the following account given to the Paris correspondent of the *Daily Telegraph* by Flight-Sergt. R———, one of the three pilots who took part in this air-flight. On page 663 we reproduce a drawing depicting this tragic incident, which must be classed amongst the outstanding deeds of the war.

"We left at 4 a.m.," says Sergt. R———, "an enemy air scout having been signalled. There were three of us, with Terline. I sighted the enemy 20 minutes later. I was up about 3,700 yards, and 20 kilometres from our line. My comrades were close by, and Terline and another first attacked. The Fokker tried spirals to escape. Being just above him, I came down beneath and behind, and at about 30 yards opened fire with a machine gun. It was then that the accident happened which misled Terline, and in which I had a

miraculous escape. Our third aeroplane, not seeing me, came straight into my machine, and both aeroplanes, put out of action, dropped. Terline thought we had been shot down, and gave his life to avenge us.

"As for me, I was certain I was done for. My machine was dropping with a corkscrew movement, the motor still working, and the machine gun still firing. I was suspended beneath by straps to my seat. How I escaped and how I managed to stop the engine and the machine gun I have not the slightest idea. In a few seconds I dropped from 3,700 to 800 yards, and could not work the controls. At last I managed one, whereupon the aeroplane steadied and planed down.

"I was not sure, owing to the mist, whether I was in our own lines, and when on landing I saw soldiers running up I was just about to set fire to my machine, but I shouted, 'Qui vive?' and the cheering answer came 'Français.' I asked what had happened in the fight.

"The Boche was brought down right enough," they answered, and it was only later, when telephoning to the base, that we heard of Terline's heroic end."

### Damage from Bombs.

OWING to the heavy nature of his public engagements, Mr. Asquith has stated that he cannot receive the deputation from the Committee on War Damage who wished to put forward once more their view that the nation as a whole should accept responsibility for damage done by bombardment and hostile aircraft and give fair compensation to sufferers. The Committee suggest that no further premiums for a year should be paid, and that insurances under the Government scheme should be only for short periods.

### London Casualties in Last Year's Air Raids.

In an official statement by the Chief Officer of the London Fire Brigade, Lieut.-Commander S. Sladen, the following particulars are given: "As a result of four enemy air raids on the London area in 1915 the Brigade received reports as to the deaths of 44 males and 34 females, and injuries to 94 males and 80 females. In addition, the lives of 20 males and 31 females were endangered by fires and explosions caused by the air raids, of whom 31 were rescued from positions of peril by the Brigade."

### Two Propeller Accidents.

ACCIDENTS such as those which cost the lives of Major H. P. Fletcher and Air-Mechanic Dillingham are fortunately rare, and it is strange that two should have occurred within two days.

At the inquest on Major Fletcher on August 6th it was stated that after flying on the afternoon of August 1st, he came down apparently about 50 yards from where he wished to alight. A mechanic went out to assist, and after two un-

successful efforts at starting Major Fletcher told the mechanic to get into the machine, and he proceeded to start the propeller. Having done so he seemed to lose his balance, and falling, forwards was hit by the propeller. He was terribly injured and died in the R.F.C. hospital two days later. A verdict of accidental death was returned.

Air-Mechanic Dillingham was assisting to start an aeroplane at Dover on August 2nd, when he was struck by the propeller and fatally injured.

### Fatal Accidents.

SECOND LIEUT. G. L. BACKHOUSE, Norfolk Regiment, attached R.F.C., was killed in the evening of August 2nd through his machine overturning.

Second Lieut. J. R. G. Whitehead, R.F.C., was killed in an aeroplane accident on August 3rd.

### German Pilots Killed.

THE *Kreuz Zeitung* records the deaths of six pilots in aerial fights on July 29th and 30th, the names being Flight-Lieuts. Freytag, von Holtz, Siebert, Kisker, Crome and Naval-Lieut. Marmode, who was shot down in a seaplane. Other German papers last week also announced the deaths of Flight-Lieuts. von Ranke, von Demborne, von Tietze, Viehmier, Heinrich, Dubois and Richter, all since July 31st.

### Austrians Honour Dead Italian Pilots.

FROM Fiume it is reported that non-commissioned officer Caparello, the pilot of the Italian Caproni aeroplane which fell into the hands of the Austrians during the recent Italian raid in South Istria, was buried with military honours on August 3rd.

### The Raid on the Ghent District.

THE *Telegraaf*, reporting the raid on the Ghent district on August 2nd says that 17 aeroplanes arrived over the town, and dividing into three sections bombed the St. Dennis aerodrome, the Mierelbeke goods station and the Gentbrugge Arsenal. An outbreak of fire was observed, and although the extent of the damage could not be ascertained, numerous Red Cross motor cars were afterwards on the streets. A later report from the frontier says that 40 aeroplanes took part. The *Echo Belge* gives the number of machines as 30, and says one squadron of 10 flew along the eastern frontier of Flanders at a height of 2,500 to 3,000 ft.

### A Zeppelin Damaged.

ACCORDING to a frontier correspondent of the *Maasbode*, one of the airships, said to be the "L 11" apparently returning from a raid on England came down in a damaged condition near Hanover. The ground was immediately railed off, while the airship, which, it is said, showed signs of numerous hits, was dismantled. Messages from Amsterdam on August 3rd stated that several Zeppelins passed over Holland apparently going to Germany, and the "L 2" and "L 11" were fired at by Dutch guards. A message from Geneva on August 3rd stated that two airships, one badly damaged, the other apparently undamaged, were reported to have arrived early that morning at Friedrichshafen.

### Raids, Past and to Come, on England.

AS WAS NOT unexpected, the recent Zeppelin visits to England have led to the appearance of several fantastic stories in Germany. Thus regarding the raid on August 2nd, the following semi-official statement was sent out from Berlin on the 5th inst. :—

"At Harwich the naval forces in the harbour were twice attacked, and the docks and railway works were abundantly bombarded. In the county of Norfolk industrial buildings and searchlight installations before Norwich and Winderston (?) were successfully attacked. Then Lowestoft was attacked, where a number of fires broke out in factories.

"On the way, when over Hoofden (?), an enemy seaplane suddenly appeared from the clouds and three times attempted to attack one of our naval airships, but each time the enemy aeroplane was obliged to retreat before our machine gun fire, and it finally disappeared westwards. Before Yarmouth one of our airships encountered a British seaplane, which was also forced to retire."

Another specimen was the following anonymous cable to the New York *World* sent out from Berlin on August 4th :—

"The third great aerial attack on England by a fleet of Zeppelins has been made within seven days. It took place last (Wednesday) night. A laconic official *communiqué* will probably be issued this afternoon. The Zeppelin fleet included two new Zeppelin giants, which are the last word in Germany's aerial cruisers, of the type to come, when a peaceful trans-ocean service will be carried on, by means of which Count Zeppelin hopes to link Germany with America in another bond in the air, as the "Deutschland" has done under the sea.

"Military reasons forbid details of the new Zeppelins, but I am able to say that they are of gigantic size, have a tremendous radius of action, and are of comparatively enormous carrying capacity. They have great speed and wind-sucking power, and are capable of flying at a great height. On this last trip they carried an enormous quantity of shells. Some idea of the power of their motors and their speed may be gathered from the fact that one of them returning from England covered a distance of 380 kilometres (237½ miles) in two hours—this, of course, with a favourable wind."

The palm, however, for magnificent lying must be given to the "telegram" sent out by the German Telegraphic Union, dated Flushing, August 2nd. Although no boat had arrived in Flushing for three days the "telegram" stated that a Dutch engineer who spent the night of July 31st-August 1st in a London suburb, witnessed the German airship attack. He is said to have been a guest of the Anglo-Dutch Rowing Club and passed the night with his friends in a boathouse on the Thames. The damage done was, he says, so serious that it is at present impossible to estimate it. Several warehouses were destroyed, and ships at anchor were seriously damaged. The excitement of the London population was indescribable. He adds that a whole quarter of Huntingdon was burnt out, and the loss of human life in Kent was especially great.

### Zeppelin Raid on Finland.

A TELEGRAM from Sundsvall to the *Stockholm Tidning* states that Zeppelins have dropped bombs on Sveaborg, a little island off Helsingfors, Finland, and on other fortifications in Finland. Although exact details of the damage done are not available, it is stated that it was small.

### Zeppelins and Dutch Ships.

IN drawing the attention of the German Government to the fact that on July 7th a German airship, the L 9, while passing close to the schooner "Weldaad," dropped some bombs which were obviously intended to hit the vessel, the Dutch Minister in Berlin, Baron Gevers, has requested the Government to issue such orders as will prevent the repetition of similar attacks on Dutch vessels. But something more than "requests" will be necessary to ensure even the most minute semblance of decent behaviour on the part of the German barbarians.

### Rome and Zeppelin Raids.

THE *Morning Post* correspondent in Rome, writing on July 27th regarding the question of Italy declaring war on Germany, states that an expert says that the only military difference would be occasional Zeppelin raids, but that Rome would be bombarded none need believe, for the presence of the Pope, whom Germany durst not offend, would act as a "lightning conductor" against aerial raids. A German bomb on St. Peter's would be worse than a great military defeat for Germany.

### Under Two Flags.

CURIOUS anomalies occur in war-time. Thus the *Nieuwe Rotterdamsche Courant* records that on July 27th a German medical officer who had deserted arrived in Genep. His story was that his father and mother and his wife and children lived in France, where he himself had served as an airman in the Legion Etrangere, but as he was of German origin he was expelled at the beginning of the war. He said he could not conform to the German service regulations, and complained of insufficient food.

### Aeroplanes and Artillery Spotting.

WRITING in the *Sunday Times* of Sunday last regarding the value of Pozières, Col. F. N. Maude, in explaining the value of the ridge which has been captured, says :—

"Indeed, the chances were against us, for a forward observation station can actually give the range and target more accurately to the guns behind it than the best of flying men trying to see through the dust and smoke churned up by our own shells on a dry but hazy day. Now, however, the break of the slope is in our hands—and our forward observing stations can see under the dust cloud when our airmen cannot see vertically through it—whereas the Germans have lost their advantage both ways. The reason is that both the ballistic power of the charge and the resistance of the air are always subject to deviation due to barometric pressure, moisture and so forth."

### The Balkan Aerial Express.

ALTHOUGH, according to the *Neue Freie Presse* of Vienna the German scheme for a Balkan aerial express is nearing realisation, it goes on to say that a meeting is shortly to be held in Budapest to discuss the nature of the capital to be raised, the types of aircraft, the landing places, and the extent of the participation of the postal authorities of the three countries. The only thing settled appears to be the course from Berlin via Vienna and Budapest to Constantinople. The scheme is under the auspices of the Austrian Lloyd, the Hungarian Banking and Trade Co., and the German Surveying Co.

### Frightfulness at Sea.

THE *Helsingoer Avis*, gives the following amusing story of two German seaplanes, which, while on patrol duty over the sea to the north of Kullen, observed the Swedish barque "Zusanne," bound for England with a cargo of pit props. In their hurry to descend and seize the vessel the seaplanes came into collision with one another and were so much damaged that they had to implore the captain of the "Zusanne" to tow them into Swedish territorial waters, which he agreed to do.

The curious procession was observed from Varberg by a Swedish patrol boat which immediately went out, but the Germans, on spotting this, managed to turn and escape into international waters, shortly after which an armed German trawler appeared on the scene and towed them southwards.

## The Life and Work of Wilbur Wright.

THE July-September number of the *Aeronautical Journal* is one which makes a wider appeal than the usual issue, as it is almost entirely taken up with the Wilbur Wright Memorial Lecture delivered by Mr. Griffith Brewer on June 6th. This, it will be remembered, dealt with the life and work of the late Wilbur Wright, and the able way in which Mr. Brewer dealt with the splendidly interesting subject makes a record which should be carefully preserved for reference and guidance. The lecture is printed complete together with all the appendices and a number of illustrations beautifully reproduced on art paper. Non-members of the Aeronautical Society may obtain copies of the complete lecture for 1s. 6d. net.

## Testing the Thomas Motor.

THE first of a batch of 135 h.p. Thomas aeromotors for the U.S. Navy was recently given a continuous eight-hour full load test before Naval Inspector Charles Cresswell, now stationed at the Thomas plant at Ithaca. In speaking of the test, Mr. Cresswell says: "The Thomas motor successfully passed its continuous eight-hour full load run. The motor ran 2,050 revolutions throughout the test and was noticeably free from vibration."

We understand that the horse-power developed was 141 at the propeller shaft, turning 1,230 r.p.m., showing that these motors are conservatively rated. The fuel consumption amounted to 12.5 gallons per hour, and the oil consumption 1.6 gallons per hour. One point about the motor which drew forth favourable comment was the absence of leaking oil.

It will be remembered that the Thomas aeromotor is fitted with a self-starter as regular equipment. This instrument, a Christensen combination air and petrol starter, selected by the Thomas engineers only after the most exhaustive trials, demonstrated its value by the ease with which the motor was started on this test.

## The "Burfron" Weatherproof.

EVER striving to improve its already unique series of garments for use in all sorts of weather the famous house of Burberrys of Haymarket have evolved "something entirely new in weatherproofs." Their latest invention—known as the "Burfron"—is so entirely different to anything worn that every aviator should see it before settling on his new equipment for defying weather, and especially wet weather. To the casual observer the "Burfron" weatherproof appears to have



"The Burfron."

no way of getting into or out of it; there it is on the person without visible buttons, fastenings or openings. A very smart and becoming top-coat, creating a confident impression, that we have here a safeguard that will absolutely defy the weather in its wildest moods.

Those who are unable to get to town and make a personal visit

to the showrooms in the Haymarket should write to Burberrys for a copy of their booklet, "The Burfron: its many uses and advantages."

## Carbide of Calcium.

IN view of the increasing use of the oxy-acetylene system of welding in connection with aircraft work, there must be many who will want to have something more than superficial knowledge about carbide of calcium. Although the book which Mr. Charles Bingham has written is mainly concerned with the manufacture of the material, he naturally has much to say about the material itself, and this should prove exceedingly useful to those who are trying to use acetylene gas to the best advantage. The book is, we believe, the only one dealing with the subject in anything like an adequate manner, and Mr. Bingham's volume should at once take its place as an authoritative work. It is well illustrated and strongly bound in cloth. It is published by Raggett and Co., and costs post free 5s. 6d.

## A British Raid Victim in Russia.

ONE of the motor ambulance columns which have recently been the target of German bomb-dropping aeroplanes was that attached to the Anglo-Russian hospital. The column was stationary at the time in a wood, and among the casualties was a British mechanic, who was wounded in the hip.

## IMPORTS AND EXPORTS, 1915-1916.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures, see "FLIGHT" for January 25th, 1912; for 1912 and 1913, see "FLIGHT" for January 17th, 1914; for 1914, see "FLIGHT" for January 15th, 1915; and for 1915, see "FLIGHT" for January 13th, 1916:—

	Imports.		Exports.		Re-Exportation.	
	1915.	1916.	1915.	1916.	1915.	1916.
January ...	20,382	1,509	435	6,399	13,706	—
February ...	380	6,444	138	30,693	18,823	—
March ...	280	3,388	7,218	17,872	5,090	7
April ...	2,189	3,383	23,986	22,608	275	3,783
May ...	178	1,986	12,530	26,165	8,250	300
June ...	5,469	4,986	3,730	59,287	2,400	—
July ...	1,240	2,072	13,372	12,932	—	—
	30,118	23,768	61,409	166,956	48,544	4,090

## Aeronautical Patents Published.

### Applied for in 1915.

Published July 27th, 1916.

- 12,375. S. UTIN AND — PAPPADAKIS. Flying machine.  
14,603. W. LAWSON. Aeronautical machines.

Published August 3rd, 1916.

- 5,339. EDGAR ALLEN AND CO. AND SHAW. Apparatus for exposing, developing and finishing photographic films on aeroplanes, airships, or other aircraft.  
9,719. J. L. GARSED. Controlling and operating planes, wings, rudders, &c., of flying machines.  
9,987. W. R. HALLETT. Aeroplanes, &c.  
10,144. F. A. DUGRO. Means for detaching bombs, &c., from flying machines and attaching them to other objects.  
10,152. R. A. HOLBECH. Propeller.

Published August 10th, 1916.

- 9,045. W. H. NOSWORTHY AND S. J. PRESCOTT. Aerial propellers.  
10,377. SPERRY GYROSCOPE CO. Automatic means for stabilising aircraft.  
10,546. W. HAYWARD. Safety belts for aviators, &c.  
10,774. E. R. CALTHROP. Parachutes.  
15,404. H. C. MUSTIN. Brake attachments for hydro-aeroplanes.

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